

# The Boston Medical and Surgical Journal

## Table of Contents

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### THERAPEUTIC AND PREVENTIVE MEDICINE

FIVE YEARS' PROGRESS IN THE DIAGNOSIS AND TREATMENT OF CONSUMPTION BY MASSACHUSETTS PHYSICIANS. By John B. Hawes, 2d, M.D., BOSTON..... 775

#### ORIGINAL ARTICLES

DISINFECTION OF SEPTIC JOINTS. By F. J. Cotton, M.D., F.A.C.S., BOSTON..... 779

A CLASSIFICATION OF RENAL INFECTION WITH PARTICULAR REFERENCE TO THE DIFFERENT TYPES OF VARIOUS AGENTS. By E. George Crabtree, M.D., BOSTON..... 780

B. DISEASE AS A CAUSE OF INFECTIOUS DIARRHEA IN INFANTS. By Carl TenBroek, M.D., BOSTON, and Frank Garm Norbury, A.M., BOSTON..... 785

INTRA-SPINAL INJECTIONS OF BICHLORIDE OF MERCURY. By Edward Livingston Hunt, M.D., New York..... 788

#### Clinical Department

LOSS OF SIGHT FROM RETROBULBAR NEURITIS DUE TO ACCESSORY SINUS DISEASE, WITH REPORT OF TWO CASES. By Leon E. White, M.D., BOSTON..... 790

#### REPORTS OF SOCIETIES

BOSTON SURGICAL SOCIETY (INCORPORATED). MEETING JAN 8, 1916..... 793

COLLEGE OF PHYSICIANS OF PHILADELPHIA. MEETING OF NOV. 3, 1915..... 795

CLINICAL CONFERENCES OF THE NEUROLOGICAL INSTITUTE, NEW YORK. MEETING OF FEB. 1, 1916..... 797

### Therapeutic and Preventive Medicine.

### FIVE YEARS' PROGRESS IN THE DIAGNOSIS AND TREATMENT OF CONSUMPTION BY MASSACHUSETTS PHYSICIANS.\*

By JOHN B. HAWES, 2d, M.D., BOSTON.

FIVE years ago, in a paper read before the Suffolk District Medical Society,<sup>1</sup> I presented certain facts and figures, based on a study of 500 patients then in our State sanatoria and 300 cases from two large Boston out-patient departments, in regard to the early diagnosis and prompt treatment of pulmonary tuberculosis in this State. The conclusions I was forced to draw from this study were not encouraging, nor did they reflect creditably on the ability of our medical profession to diagnose tuberculosis in its early stages or its willingness to institute prompt and aggressive treatment. For instance, out of the 500 patients then in our sanatoria, well over 50% were told by the first doctor they consulted that they did not have consumption, while of those who first went to a doctor on account of a hemorrhage, nearly half were informed that the blood did not come from their lungs, and that they did not have tuberculosis.

I did not believe at the time that this could be anything but a temporary state of affairs, and I

HARVARD MEDICAL SCHOOL	
HARVARD MEDICAL SOCIETY. MEETING OF MAR 2, 1916..... 799	
BOOK REVIEWS	
Sexual Impotence. By Victor Vechi, M.D.....	801
A Text-Book of the Practice of Medicine. By James M. Anders, M.D.....	801
EDITORIALS	
MASSACHUSETTS MEDICAL SOCIETY MEETING.....	802
FAILURE OF MILK LEGISLATION IN MASSACHUSETTS.....	802
THE LEPER IN MEDIEVAL TIMES.....	804
THE MEDICAL MEETINGS IN WASHINGTON.....	805
SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.....	805
THE BOSTON MEDICAL LIBRARY.....	806
MEDICAL NOTES.....	806
MASSACHUSETTS MEDICAL SOCIETY	
PROGRAM OF THE 135TH ANNIVERSARY.....	811
CORRESPONDENCE	
NAPOLEON'S WOUNDS. Alfred Elia, M.D.....	813
CAESAREAN SECTION AGAIN. John T. Williams, M.D.....	814
MISCELLANY	
NOTICES, RECENT DEATHS, ETC.....	814

was firmly convinced that the vigorous campaign which was then, and still is, being carried on to educate both the public and the medical profession in matters of general health and the prevention of disease, must soon begin to show good results. A sign of this progress is shown by the fact that the percentage of incipient cases at the Rutland State Sanatorium, which fell as low as 18% in 1910, when the applications of patients for this institution were first thrown open to the medical profession, has now risen to 37% for the year 1915. This increase in the proportion of incipient cases at Rutland is in spite of the fact that the provision for consumptives in Massachusetts at the present time is not relatively greater than was the case in 1911. In other words, while the actual number of beds has decidedly increased, there has also been an equal increase in the number of cases discovered and diagnosed. It is all the more encouraging, therefore, to note distinct signs of progress in the early diagnosis and treatment of tuberculosis by Massachusetts physicians during the past few years. Probably the great factor in the improvement which has been made is the growing realization by the medical profession of the seriousness of the problem and that, to make headway in the campaign, co-operation of all forces is necessary. The establishment of tuberculosis dispensaries in cities and towns of 10,000 inhabitants or over, which has at last been accomplished, will be a tremendous help. The fact that a tuberculosis nurse has been regarded as an essential part of such a dispensary is of still greater help.

The facts and figures which I am about to pre-

\* Read before the Worcester County Medical Society, Feb. 9, 1916.

<sup>1</sup> The Responsibility of the Medical Profession for the Early Diagnosis and Prompt Treatment of Pulmonary Tuberculosis. Reprinted from the BOSTON MED. AND SURG. JOURN., Feb. 8, 1912.

sent show a marked improvement over the similar ones of four years ago. They are based on a study of 100 consecutive cases diagnosed as tuberculosis at the Massachusetts General Hospital, 100 at the Boston Consumptives' Hospital, and a further study of 500 patients at the North Reading, Lakeville, Westfield, and Rutland State Sanatoria. From the records of patients at the Massachusetts General Hospital and Boston Consumptives' Hospital I hoped to find out first how long it took to make a diagnosis of consumption,—the prompt diagnosis,—and second, its early diagnosis.

**TABLE I.**  
**OUT-PATIENT DEPARTMENT, MASSACHUSETTS GENERAL HOSPITAL.**

### *One Hundred Cases of Pulmonary Tuberculosis.*

Библиотека по Технологии Space and Physics

Year.		7A Once.	Within One Week.	More Than One Week.	I.	II.	III.	Positive	Negative.	Not Exam.
1911		70	35	30	30	51	19	53	18	24
1915		56	30	14	40*	47	13	19	17	64

\* Positive sputum in only three cases

The 1915 figures show an interesting change over those of 1911, in that, whereas in 1911, the number of first-stage cases (30) is not much less than that of 1915 (40); the number of positive sputa (58 in 1911) is notably greater than that of 1915, which is only 19. This means that the diagnoses are being made when the disease is really in its incipiency, and not when it is already moderately advanced, with a positive sputum.

**TABLE II.**  
**OUT-PATIENT DEPARTMENT, BOSTON CONSUMPTIVES  
 HOSPITAL.**

### **One Hundred Cases of Pulmonary Tuberculosis**

**DIAGNOSED AS TUBERCULOSIS. STAGE OF DISEASE. SPUTUM**

Year.	At Once.	Within One Week.	More Than One Week.	I.			II.			III.			Positive	Negative	Not Exam.
				5	12	-4	3	14*	43	43	19	17			
1910	91						27	47	26		44		31		
1915	92			5	12	-4	3	14*	43	43	19	17	64		

- so positive sputum in this group.

This table shows the same variance of the later figures over the earlier ones as in the preceding table. The number of positive sputa dropped from 44 in 1910 to 19 in 1915, showing again that the physicians in this hospital were able to make a positive diagnosis without the aid of a positive sputum examination.

In the second part of the study I have tried to find out what progress has been made by the profession at large in the prompt diagnosis, the early diagnosis, and last, the proper disposal of its consumptive patients. As in my earlier report, I had to obtain my information from patients themselves, using for the purpose 500 in-

mates of our State sanatoria. Cards asking certain definite questions, were given to the patients by the superintendents. The questions I asked this year were approximately similar to those asked four years ago, so the answers offer a just basis for comparison. A summary and analysis of my replies, compared with those of 1910, is here given.

TABLE III

TABLE SHOWING NUMBER OF PATIENTS WHO NEVER SUSPECTED THAT THEY HAD LUNG TROUBLE UNTIL SO TOLD BY A PHYSICIAN.

Year.	N.	R.	L.	W.	R.	Total.
1911 .....	15		7	4	51	77
1915 .....	85		79	71	173	408

I am really at a loss to explain the great difference between the earlier and the later sets of figures. I hope it means, first, that more patients are going to a doctor for routine examinations before they feel seriously ill; and, second, that doctors are more awake to the possibility of tuberculosis being present, even in the absence of signs pointing to this disease.

TABLE IV

**TABLE SHOWING CHIEF SYMPTOMS FOR WHICH PATIENTS  
CONSULTED THEIR PHYSICIANS.**

N. R.	L.	W.	R.	Total.	
1911.	1915.	1911.	1915.	1911.	1915.
55	54	46	58	53	57
1911.	1915.	1911.	1915.	1911.	1915.
106	90	260	250	Cough, Cold, Grippe.	
24	20	23	20	20	27
				58	48
				125	115
				Weak, Tired, Run down.	
15	11	13	13	12	15
				8	28
				48	67
				Pain in chest.	
8	11	14	6	16	14
				43	34
				81	65
				Hemorrhage.	

This table needs no comment. The closeness of the figures, though four years apart, shows that the four great groups into which the symptoms of tuberculosis divide themselves, remain still the same. The comparative figures concerning "hemorrhage" are of decided interest, as shown by the following table:

TABLE V

TABLE SHOWING NUMBER OF CASES IN WHICH PATIENTS  
CONSULTED A PHYSICIAN ON ACCOUNT OF HEMOR-  
RHAGE, AND THE PHYSICIANS' ANSWER AS TO  
WHETHER OR NOT IT MEANT TUBERCULOSIS.

The improvement shown in the 1915 figures over those of 1911 is not striking, but, nevertheless, very evident. In 1911 nearly 50% of those

patients who consulted a doctor on account of hemorrhage were told that this did not mean consumption and that they might go on their way rejoicing; in 1915 only 40% of this class of patients were thus misled. There is still room for improvement in this regard. The following figures are of equal interest:

TABLE VI.

TABLE SHOWING NUMBER OF PATIENTS SAID TO HAVE CONSUMPTION AND THOSE SAID NOT TO HAVE CONSUMPTION.

N. R.	L.	W.	R.	Total.
1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.
33 60 42 49 40 48 100 92 215 249				

Patients told  
that they  
DID HAVE  
CONSUMP-  
TION.

N. R.	L.	W.	R.	Total.
67 40 58 51 60 52 100 108 285 251				

Patients told  
that they  
DID NOT  
HAVE con-  
sumption.

According to the 1911 figures out of 500 known consumptives 285, or 55%, were told by their doctors that they did not have consumption, or what is perhaps worse, were not told that they did have consumption. In 1915, the figures had dropped to 251, or a trifle over 50%. Here again there is still room for improvement.

What the patients were told by their doctors, or what they at least understood their doctors to say when they went away secure in the faith that they did not have consumption, is shown as follows:

TABLE VII.

TABLE SHOWING DIAGNOSES GIVEN PATIENTS BY THEIR PHYSICIANS WHO SAID THEY DID NOT HAVE CONSUMPTION.

N. R.	L.	W.	R.	Total.
1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.
10 15 21 17 22 21 20 37 73 90				

Bronchial trou-  
ble, bronchitis,  
cold, grip.

N. R.	L.	W.	R.	Total.
18 10 7 13 11 18 22 21 58 62				
22 4 10 6 11 5 5 15 48 40				

Run down, need-  
ed a rest.

Spot on lungs,  
weak lungs,  
lung trouble,  
lungs affected.

This shows at a glance the need of speaking, not unkindly or cruelly but clearly and distinctly, when a physician is endeavoring to explain to a patient the exact situation in regard to his lungs. Patients in such circumstances are looking out for every tiny detail which will strengthen their view that their lungs are sound; they will believe what they wish to believe. Within the past week a patient whom I sent to Saranac Lake, an extremely well-educated and intelligent young man, has returned with the idea, to use his own words, that "there is nothing much the matter with me," and is convinced

that the doctor told him so, and yet nothing could possibly be farther from the truth.

Despite making all allowance for the stupidity of patients or their wilful misunderstanding or misstatement of the facts, this showing is not a good one. It certainly seems as if out of 500 consumptives that over 50% should have been made to understand distinctly what was the matter with them.

The next table shows how prompt the physicians, or in some cases the patients, were in making application for admission to a state sanatorium after the diagnosis was made.

TABLE VIII.

TABLE SHOWING INTERVAL BETWEEN FIRST VISIT TO DOCTOR AND TIME OF APPLYING FOR ADMISSION TO A SANATORIUM.

N. R.	L.	W.	R.	Total.
1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.	1911. 1915.
19 38 25 45 21 39 52 121 117 243				

Applied with-  
in one week.

N. R.	L.	W.	R.	Total.
13 17 18 19 14 16 43 29 88 81				
22 27 15 29 24 30 60 34 121 120				
27 16 28 7 41 13 39 12 145 48				

One week to  
one month.

One month to  
six months.

Waited over  
six months.

These figures of 1915 show a most encouraging improvement over those of 1911. Out of the 500 patients, over twice as many in 1915 made application at once for admission to a sanatorium and only one-third as many waited over six months before applying.

The number of physicians whom these 500 patients consulted in 1915 in order to obtain a diagnosis and treatment was approximately the same as in 1911, the earlier figures being 1128, the latter, 1157. This is shown in the following table:

TABLE IX.

TABLE SHOWING TOTAL NUMBER OF DOCTORS VISITED BY FIVE HUNDRED PATIENTS.

Year.	N. R.	L.	W.	R.	Total.
1911 .....	202	224	234	468	1128
1915 .....	227	221	245	464	1157

I was much interested in finding out why these 500 patients saw fit to consult over two doctors apiece, particularly in view of the fact that 50% were at once told they had consumption and at once made application for admission to a state sanatorium. The answers are tabulated below, the first table showing the number who consulted more than one doctor and the second, their reason for so doing.

TABLE X.

TABLE SHOWING NUMBER OF PATIENTS WHO CONSULTED TWO OR MORE DOCTORS.

N. R.	L.	W.	R.	Total.
35 36 37 55 163				
65 64 63 145 337				

Consulted only one physician.

Consulted two or more physi-  
cians.

According to these figures over 67% of the patients felt obliged to consult two or more doctors before they were satisfied. Their reasons were as follows:

TABLE XI.

TABLE SHOWING REASONS WHY 337 PATIENTS CONSULTED MORE THAN ONE PHYSICIAN.

N.R.	L.	W.	R.	Total.
12	11	2	34	59
22	25	31	61	139
12	22	16	28	78
6	2	2	0	10
13	4	12	22	51

On advice of first doctor.  
To be sure he was right.  
Failure to get any better.  
To get into a sanatorium.  
Did not reply, or miscellaneous.

These figures are of great interest. One hundred and thirty-nine, or 41%, went to another doctor in order to be sure the first one was right, 78, or 23%, because they did not improve under the advice and treatment given by the first physician, and 59, or 17%, because the first physician advised them to do so. No particular comment is needed on these figures as they speak clearly enough for themselves.

Finally, I tried to find out how much it cost these 500 patients to ascertain what was the matter with them. The figures do not mean very much but are of some interest.

TABLE XII.

TABLE SHOWING AMOUNT PAID IN DOCTORS' FEES BY 421 PATIENTS WHO ANSWERED THIS QUESTION.

N.R.	L.	W.	R.	Total.
\$678	\$1246	\$1480	\$2022	\$5435

Although I do not place much faith in the accuracy of the answers given me, it was a distinct surprise that the total should have anywhere near approximated the amount given above, an average of over ten dollars per patient.

That the present situation is in every way an improvement, and in some respects a great improvement, over that of four or five years ago, is clearly shown; that there is still room for more improvement is shown with equal force. In commenting on this, I do not think that I can improve on the suggestions I made in my paper of 1911, as follows:

(1) Every patient, or at least every patient in whom there is the slightest suspicion of lung trouble, should receive a routine physical examination, with the patient stripped to the waist. Examination of the sputum should be a part of this routine.

(2) A "hemorrhage" should be considered as definitely indicating consumption unless there is clear evidence to the contrary, which there practically never is. Furthermore, the patient should be told so.

(3) Do not put off making a definite diagnosis until you find bacilli in the sputum. The real "early" diagnosis should be made long before bacilli appear in the sputum, and, indeed, it may be said that after bacilli appear there can no longer be an early diagnosis.

(4) Look more at the patient himself and his history and less at his lungs.

(5) In every doubtful case make the patient keep a record of his temperature and pulse, taken at the hours of 8, 12, 4 and 8, and report in a week.

(6) Talk plainly, openly and frankly with the patient, and if he has consumption see that he knows it. Err on the side of aggressive, early and efficient treatment.

(7) If the patient has consumption, try to get him in a sanatorium or hospital at once. Even if he will stay but a month or six weeks, he will there learn more than in a much longer time at home.

#### SUMMARY AND CONCLUSIONS.

1. In the early diagnosis of tuberculosis distinct improvement has been made during the past five years, as shown by the increased number of diagnoses of incipient tuberculosis without the presence of a positive sputum.

2. As far as can be judged from figures obtained at the Massachusetts General Hospital and the Boston Consumptives' Hospital, diagnosis in all cases was made very promptly in 1910, and likewise in 1915.

3. There has been a vast increase in the number of patients who have gone to a doctor before they suspected they had consumption; as shown by the figures, 77 out of 500 in 1911, and 408 out of 500 cases in 1915.

4. The chief symptoms for which patients consulted their physician in 1915 remain the same and in the proportion as was found to be the case in 1911.

5. In cases of hemorrhage fewer patients who first consulted their physician for this reason have been told that they did not have consumption in 1915 than in 1911. This is likewise the case in regard to the patients who were told that they did not have consumption on first consulting their doctor. The improvement in these two respects, however, is not as great as was to be hoped.

6. The diagnoses given to patients by their physicians who said that they did not have consumption in 1915 range themselves in the same main groups as was the case in 1911. It is not encouraging that, at the present time, out of 500 consumptives, over 50% were not given to understand by their physician that they had consumption.

7. There has been an encouraging increase in the number of applications for our State Sanatoria which were made by the physician either at the time of the examination of the patient or immediately after. In view of the length of the waiting list for the Massachusetts State Sanatoria this is an important thing for the physician to remember if he wishes to secure early treatment for his patient.

8. The number of physicians visited by these 500 patients in 1915 was approximately the same

as the number in 1911. Of the 1915 patients, 163 consulted only one physician, while 336 went to two or more physicians.

9. Of these patients who consulted two or more physicians, 41% went to another physician in order to be sure the first was right, 23% because they did not improve under the treatment given by the first physician, and 17% because the first physician advised them to do so.

10. According to the statements given by these 500 patients, it cost \$5,435, or approximately \$10 per patient, for them to obtain diagnosis and treatment for their condition.

### Original Arthritis.

#### DISINFECTION OF SEPTIC JOINTS.\*

By F. J. CORROX, M.D., F.A.C.S., BOSTON.

I THINK we have all begun of late years to understand that joints may be opened, with an approximately exact technic, without great risk, and that more or less reparative or remodelling surgery may be done within the joint. This is not the point, however, that I wish to make; rather I want to bring to your attention the proposition, not to be called a fact just yet, that the joint *itself—the closed joint*—has not a low resistance, but a high resistance to septic infections; that it seems to withstand very well indeed our usual active disinfectants, and is of a temper to accept and utilize their aid; that the joint has been a much-maligned entity.

I shall show, I think, that the joint cavity is far more capable of disinfection than the surrounding muscular and intermuscular spaces; it is, however, to be expected to show such capabilities only when it is kept apart—as a *closed joint*. We have all seen how slow and chronic a course may be taken by joints later found to be infected; infected not only by the gonococcus, but even by staphylococci and streptococci, of considerable (presumably) virulence.

All of us have seen the horrid course of infected knee-joints, treated by the ancient criminal method of drainage by wicks. They all had septic-toxemia of severe grade, and many died; it is my impression that most of them died as the result of prolonged and extensive suppuration between the muscle planes of the thigh and in the popliteal space, rather than from direct absorption from the septic joint.

In illustration, let me cite the case of an elderly woman who appears before me only too vividly in the northwestern corner of ward X, who had an infected knee (not very troublesome), with an effusion of some weeks' duration. One evil day we discovered, by tapping, that it was a streptococcus infection, and forthwith opened it, washed it out and drained it. There

was never any further sign of real trouble in the joint, but abscess after abscess formed in the thigh, and in time she died.

My first suspicion of the actual situation came from the results of operation on gonococcus knees about eight to ten years ago. We drained some of them then, but had come to let some of them drain themselves through an unclosed incision.

I think it was the uncertainty as to healing, the dread of an ingoing suppurative infection, and the fear of re-opening a track for infection by the obviously desirable early motion, that first made me sew up the capsule, after washing out the pus and the fibrin. These cases did well (did better than the others), and it then dawned on me that the joint might not be so hopeless a field after all; that it might have some power of self-protection, if given the chance.

Fortune presently presented some cases of mild *septic* infection; treated likewise, these also did well. Next came the obviously severe cases. Of these, such are presented as I have records of. Most of them I cannot trace; they have gone missing in the ruck of big hospital services. Unfortunately, the real importance of the matter hardly impressed me until lately; not until I realized that the other fellow was not following in what seemed to me the obviously logical line of procedure.

There were a number of cases, and I can recall but two failures. One was an accidental wound of the knee; streptococcus infection; washed with bichloride and sutured; infection recurred; wide-open drainage was needed, and saved life. The other was an infected knee in a small boy, of epiphyseal origin; staphylococcus; disinfection apparently succeeded, but, after some weeks, sinuses appeared. The joint closed, but partial fibrous ankylosis resulted. The rest of the cases have done well. The available cases are here recorded.

CASE 1. B. S.; girl of 10; ill over a week, after a slight trauma two weeks previously. Seen January 18, 1909. Knee swollen and tender; temperature 102.5°. Operation performed as soon as she could be gotten to the hospital. Incision into the tense quadriceps pouch, on the inner side of the knee. The joint was full of thick pus; from staphylococcus aureus, as it proved later. The joint was irrigated for 15 minutes with 1-15,000 of bichloride in salt solution, then flushed with simple salt-solution; the capsule was then accurately stitched together. In this case there was also a large popliteal abscess, which was opened and drained, and a sequestrum taken out later through the popliteal space. There was a little effusion in the knee after the primary operation, but this and all septic reaction disappeared promptly. The patient is now seventeen years old, and one can tell the knees apart only by the superficial scars.

CASE 2. Man of 40; had had an old osteomyelitis of the femur with some stiffness of the knee. For seven weeks previous to my seeing him, he had been ill, with a recurrence of the bone sepsis and with reopening of a sinus. For some days the knee

\* Read before the Boston Surgical Society on January 8, 1916.

had been swollen and very tender. He was gotten into the hospital and operated on promptly, the same technic being used as in Case 1; the capsule was closed in the same way. In this case, on account of the presence of so much pus from the sinuses, the skin was also sutured and sealed. An infected bone focus was cleared out at the time; later a small sequestrum was removed. There never was any trouble with the joint, and he recovered free joint motion of a range as great as he had had before. A bone sinus persisted.

**CASE 3.** A child of six years; admitted to the City Hospital for a septic elbow wound of ten days' duration. This did not seem to involve the joint. She went to the out-patient department ten days later, but 38 days after the injury, she came in again on my service with a draining wound, obviously going into the joint. There was motion of 30 degrees, with very little pain or spasm. Operation July 12 showed some loss of cartilage on the humerus, and a red, spongy, synovial membrane. The raw bone surface was painted with strong carbolic; then the joint was irrigated in the usual way and closed tight. Twelve days later the wounds were entirely healed and there was 45° of joint motion. Two months later, motion had largely disappeared. Adhesions in this case, owing to the cartilage loss, were inevitable. The point is that the joint infection after 38 days could still be disinfected and stay clean. The cultures in this case were mixed, staphylococcus predominating.

**CASE 4.** A boy of nine; knee-joint effusion after slight trauma. After a week, the joint was opened from either side and drains put in. They remained in until he was brought to me nine days later. Aug. 29, 1914, I operated, excising the edges of the drain holes, washing and suturing in the usual way. Despite the nine days of drainage, the synovial membrane showed little beside reddening. In this case, some weeks later, after 45° of motion had been regained, I broke up some adhesions. I got a report a month ago, saying that the knee is now perfect. The infection was staphylococcus aureus. Streptococcus said to have been found with the staphylococcus in the cultures taken by the man who drained the joint.

**CASE 5.** Boy of 8; septic elbow following diphtheria; joint tense and tender. Operated upon as usual; culture pure staphylococcus aureus. On February 16, 1915, five days after the operation, there was no limitation of motion, no swelling, no discharge; the open external wound was beginning to granulate. This joint I have seen recently; it is perfect.

**CASE 6.** A boy of seven; had a severe scarlet fever and developed mastoid infection and eventually a pus-elbow. I saw him April 19, 1915 and opened, washed and sutured in the usual way. The culture showed streptococcus only. This joint showed no signs of trouble after this, but on April 22 he showed signs of trouble in the right knee. This got worse, and April 26 the knee was opened and dealt with in the usual way. Here there were both staphylococci and streptococci. The joint did as usual, save for a little more recurrence of effusion and tenderness than usual for a few days. Sixteen days later he died of septic meningitis and pneumonia. Autopsy showed the knee to be sterile,

and sections of the synovial membranes showed practically nothing.

**CASE 7.** A boy of five; operated on for osteomyelitis of the tibia; he showed five days later an effusion into the other knee. This was opened and treated in the usual way. The culture was staphylococcus aureus. The capsule stayed tight, though the external wound was sluggish and there was some cellulitis about it for a while. The knee is now perfectly good with free motion. He is now finishing the repair of his new osteomyelitic tibial shaft, with a perfectly good knee on the other side.

These cases are enough, it would seem, to establish disinfection as possible and as harmless. I am told by some of my friends that it is impossible that infected synovial membranes should be disinfected; that washing out would do as well. This, to my mind, is book argument purely, and I can only say that, while I have seen a few cases of infected joints in children heal after simple washing, yet I have seen far more in which this method failed miserably. I am not sure that corrosive is the last answer, but I am sure that we should disinfect. The synovial changes in these cases are not great, and it seems likely that for some time the infection is mainly superficial, and is to be reached by disinfectant fluids. I do not know this to be true, but dare not do without disinfection. I am very sure, however, that when we have put the joint in the best shape we can, we must *shut it up*. Everyone knows that we cannot disinfect soft tissue wounds, and infection will spread in as well as out. *We must seal the joint to protect it*; this can be done, and it works. Drainage does not work. Murphy is absolutely correct in denouncing the drainage of joints as a crime. From the few of his cases that I have seen, it seems to me he fails to remove fibrin and other debris and stirs up more reaction than I do in my way. In the matter of principle, however, in the leaving of the joint as a *CLOSED CAVITY*, he is absolutely correct.



#### A CLASSIFICATION OF RENAL INFECTION, WITH PARTICULAR REFERENCE TO TREATMENT.\*†

BY HUGH CABOT, M.D., BOSTON,

*Chief of Genito-Urinary Department, Massachusetts General Hospital;*

AND  
E. GRANVILLE CHARTREE, M.D., BOSTON,

*Assistant Genito-Urinary Surgeon to Out-Patient Department, Massachusetts General Hospital.*

MUCH confusion has surrounded the subject of renal infection. The sources of this confusion can be roughly summarized as follows:

\* Read before the Boston Surgical Society on January 3, 1916.

† This paper represents a brief statement of our views which will appear in more complete form later, at which time the evidence supporting our conclusions will be presented.

1. The very common and natural tendency to regard various perfectly definite stages in the same pathological process as separate pathological entities, because they give different clinical pictures.

Thus perinephritic abscess, when fully developed, may be found in a patient with a perfectly normal urine and a perfectly normal kidney on that side, as far as our rather gross methods of diagnosis will show, and yet that abscess may very probably have been the result of a staphylococcus infection of the kidney, and the diagnosis could have been made and the abscess drained before it showed any physical signs had the relation been understood. Again, pyelitis and pyelonephritis are generally regarded as quite apart from pyo-nephrosis, and yet the latter is an almost inevitable result of the former if the course is of the very common chronic type.

2. It has often been assumed that a similar clinical picture could be safely treated as if the underlying pathological condition were the same, but the results of this assumption have been disastrous. For instance: unilateral renal pain and tenderness, fever, chills and abundant pus in the urine with colon bacilli is a picture which may be produced either by acute pyelonephritis or by the infection of a hitherto unsuspected hydronephrosis and its sudden conversion into a pyonephrosis. But while the former requires only rest, heat and hexamethyleneimine, the latter demands nephrectomy.

3. It has not been sufficiently recognized that a late destructive lesion may be the result of very different early causes and that its prevention would have required wholly different plans of action. The moderate sized subacute or chronic type of pyonephrosis may be the end result of a pyelonephritis, a hydronephrosis due to kinked ureter, or of obstruction of the bladder by prostate or stricture.

4. And, finally, we have grossly neglected careful, painstaking and early bacteriological study of the urine because we have been too apt to regard all renal infections as similar in their general management. No assumption could be more dangerous, for it has been clearly shown that with a similar renal background to start with, the infections of the kidney with the staphylococcus or with the colon bacillus run radically different courses and require wholly different management.

I believe I have not overstated the amount of confusion that exists in the mind of the average surgeon, and this, together with the fact that our knowledge of these infections has of late become better crystallized, is my justification for calling to your attention this always interesting subject.

The simplest and clearest classification of renal infections seems to me to be their division into two main groups.

1. Infection in kidneys having no previous gross lesion and not part of a general and in itself lethal septicemia.

2. Infection in kidneys having an antecedent gross lesion, such as stone in kidney or ureter or damage dependent upon obstruction of ureter or bladder.

The renal infections comprehended in Group 1 are, from the standpoint of their pathology, much the simpler because the problem is one of pure infection uncomplicated by forces, the amount of which is difficult to estimate and whose importance can, therefore, only be guessed at. But it is also for us the most interesting and important group, because in an uncomplicated field we can study the behavior of the kidney and its reaction to infection.

Group 2 includes a highly complicated set of conditions, because previous damage, while weakening the ability of the kidney to resist infection, cannot be asserted to have weakened all parts alike. Moreover, in this group, are included all the cases with obstructed or dilated ureters, and in these bacteria may reach the kidney by mechanism, such as retroperistalsis and even backwash, not possible under normal conditions.

Also from the point of view of the surgeon, these cases are not chiefly problems in renal infection, but rather in the management of the original lesion, be it the stone, the diverticulum, the prostate or the stricture. Therefore, partly because it would lead me too far afield, partly because of its complexity, but largely because a clear understanding of the problems of pure renal infection will enable us to manage intelligently the problems in Group 2, I shall devote my time here wholly to the class of infection coming in Group 1.

In this group there are three quite distinct types of infection, viz:

1. Those due to infection with the coccus group.
2. Those due to infection with the colon bacillus group.
3. Those due to infection with the tubercle bacillus.

The majority of coccus infections of the kidney are produced by either the staphylococcus aureus or albus, less frequently by the citreus.

This type of renal infection has been much misunderstood because it was early described as "septic infarct or multiple septic infarct," thus giving rise to the conception that it was of embolic origin. While septic infarct of the kidney is always a possible lesion it is generally only a part of an acute endocarditis, and rarely an important lesion. The error perhaps arose and has been perpetuated because pyramid-shaped lesions of the kidney of coccus origin are not uncommon, but this form is not proof of embolic origin, but only that the infection has rapidly involved the whole pyramid and has been

limited by the anatomical peculiarities of the kidney. In fact, most infectious lesions of the kidney show, at least microscopically, a marked tendency to the pyramidal form, and when appearing as macroscopic lesions, are evidence of virulence rather than of origin.

#### THE NATURAL HISTORY OF THE COCCUS LESION.

I believe the evidence all points to the arrival of the coccus at the kidney in the ordinary routine of excretion, since it is being generally recognized that various bacteria circulate in the blood stream with a frequency which might be described as considerable and cause oftentimes insignificant symptoms.

Having reached the kidney, the coccus, being a rapid pus producer, causes a suppurative glomerular lesion, hence the subcortical and cortical lesions, so characteristic of this type of infection. Frequently these little abscesses perforate the true capsule and reach the fat capsule, thus laying the foundation for extensive perinephritis and perinephritic abscess, the relation of which to coccus infection has only recently been made clear.

If the infection be massive and virulent, involvement of the whole pyramid may occur, and if many or most of the subdivisions of the kidney are invaded, the very severe and rapid disintegration, with symptoms resembling an acute abdominal lesion, will result.

It should be remembered in any discussion of renal infection that the process does not spread laterally beyond the limits of the reneulus in which it starts. If an active infection should occur in the glomeruli of only one reneulus, then a lesion pyramidal in shape and resembling an infarct might easily be produced, since the infection will spread only up and down, and once in the kidney can reach another division only by following the renal pelvis or the capsule. The pyramidal lesion, which has been described and even excised in these cases under the impression that it was an infarct, might be due to thrombosis of the vessels at the base of the pyramid by cocci reaching that level during the attempt at elimination.

Perhaps the most important characteristic of the coccus lesion, however, is the tendency, already referred to, to produce subcapsular lesions resulting in perinephritic abscesses in the fat capsule and perinephric abscess, without doing important damage to the secreting substance of the kidney and without serious lesions of the tubules. Under these circumstances very little pus will be found in the urine, and very little effect will be produced on renal function as we are able to test it. In fact, pus in the urine in any amount will occur only with extensive, though not rapid, necrosis of the pyramid. It should also be noted that with the coccus infections there is little or no infection of the renal pelvis, which is the portion of the kidney that most commonly contributes pus to the urine.

#### NATURAL HISTORY OF THE COLON BACILLUS LESION.

Renal infections with the colon bacillus have been misunderstood in part at least, because they have been dragged into the controversy of ascending vs. hematogenous infection and have been looked upon as largely of ascending origin. Following this unsound assumption, many writers have tried to make the lesions found in the kidney conform to the theory. I do not wish here to get involved in this controversy further than to state my opinion that, though ascending renal infections are generally of colon bacillus origin, colon bacillus lesions are generally not ascending but hematogenous in origin.

The most important renal lesion in these infections is of the pelvis, and this has been held by some writers to be evidence of ascension, in utter disregard of the well-recognized fact that in infections proved to be of hematogenous origin, the most important and lasting lesion is pelvic.

It is now generally accepted that colon bacilli circulate in the blood under many conditions and are excreted by the kidney. Thus they are frequently in contact with kidney tissue, and, in the absence of gross lesions due to obstruction of the lower urinary tract, the hematogenous route is altogether the most probable, to say nothing of the work of Crabtree and others who have proved it beyond doubt in certain instances. The hematogenous origin of the infection of the kidneys in this group has been proved with far more certainty as concerns the colon bacillus than for the coccus, but for the latter it is generally accepted.

The colon bacillus, like the coccus, produces its lesions during the attempt at its excretion. The character of the lesions produced in the kidney by the colon bacillus differs from those produced by the coccus, because of the essentially different habits of the organism. Being a mildly pathogenic organism, it passes the glomerulus, causing little or no effect, acts first at the level of the convoluted tubule, where it causes only moderate lesions without suppuration, and shows most of its action on the mucous membrane of the pelvis, where it causes a well-marked pyelitis with a strong tendency to become chronic. From this pyelitis in the chronic form, recurrent infections of the kidney occur, involving both tubules and interstitial tissue, and thus in time the kidney may be largely destroyed, partly by scarring of the kidney itself and partly by the pressure exerted by the thickened and more or less obstructing pelvis and upper ureter. In maintaining its grip upon the kidney, this bacillus has a distinct advantage over all comers through his ability to grow and live happily in the urine.

In contradistinction to the coccus, the colon bacillus produces little cortical disturbance, little perinephritis except that due to reinfection from the pelvis, much disturbance in the tubules and marked pyelitis. From this it follows that

there is very marked effect on renal function and very marked pyuria. The immediate effect of the infection is never as severe as the worst cases due to the coccus, the subacute stage is neither as prolonged nor as severe as with the coccus, but recovery cannot be expected with the same certainty after the acute stage has passed. The coccus either produces a lesion that demands operation or gets well; the colon bacillus lesion rarely demands operation, but often does not get well.

#### THE LESIONS OF TUBERCULOSIS.

Renal tuberculosis is so much a field by itself, has attracted so much attention, and is, on the whole, so well understood that it will be mentioned here only for the purpose of comparison.

Accumulating evidence seems to me to show that in the majority of cases the tubercle bacillus reaches the kidney through the blood in the process of excretion, as do the cocci and colon bacilli, though in occasional cases other methods of entrance may be admitted.

The behavior of the tubercle bacillus in the kidney resembles the colon bacillus rather than the coccus, but it is fundamentally different from either. Not being a rapidly growing organism or a pus producer, it passes the glomerulus and produces its most marked lesion at the level of the convoluted tubule. This is at the start a closed lesion and may remain so for a considerable time, giving rise to the type of lesion known as "closed tuberculosis," in which the tubercular nodule, though going on even to caseation, does not communicate with the renal pelvis and shows practically no evidence in the urine. Such a lesion is, however, the exception, and in the vast majority the process reaches the renal pelvis early, either by ulceration or by direct infection by bacilli which have been excreted. Pyelitis is an early and marked lesion in tuberculosis, and is most marked about the tips of the pyramids. The bacilli also travel toward the cortex from the central lesion, probably following the intertubular tissues. They here produce miliary abscesses, invade the fat capsule, cause perinephritis, abscesses in the fat capsule and perinephric abscess. In all these later respects they follow the habits of the coccus, though their method of reaching the cortex is different, but there is evidence to show that they not only produce these capsular lesions, but extend to other portions of the kidney, and even to the opposite pole by moving along the lymph spaces of the capsule and there re-enter the kidney and produce new cortical lesions.

As regards the progress of the disease, it differs from all other infections in that the efforts of nature to effect a cure are probably never successful, and that cure results only by removal of the whole kidney, either by nature (caseation) or by art (nephrectomy).

#### MIXED INFECTIONS.

Though perhaps properly to be excluded from this discussion because there is a previous gross lesion, I am inclined to note briefly the characteristics of the mixtures of the three just described infections. They occur in all possible combinations,—tubercle bacillus and coccus, tubercle bacillus and colon bacillus, and colon bacillus and coccus; and it commonly occurs that the more chronic form becomes infected with the more acute, and takes on the latter's clinical picture.

Thus a kidney with a chronic, often symptomless, tubercular infection, becomes the seat of a coccus infection is thrown on the screen. The fever, chills, renal pain and tenderness, the perinephritis and even perinephric abscess develop according to schedule, but the picture is confused by the presence of pus in the urine and staphylococci, unless the tubercular lesion be of the rarer closed form, and the conclusion is erroneously drawn that we are dealing with a coccus infection with a grossly purulent urine. Such a case has been recently under our observation, and though the diagnosis of coccus infection with perinephritis and perinephric abscess was correctly made, the small chronic tubercular lesion was overlooked.

The combination of tubercle and colon bacillus is confusing, because it departs but little from the clinical picture of colon types of infection, and the tubercular lesion is generally not suspected.

There are only two diagnostic manoeuvres by which the error can be corrected,—cystoscopy with the discovery of a lesion about the ureter orifice which suggests tuberculosis, and the recovery of the tubercle bacillus from the urine. Neither of these is commonly successful in the cases in which the younger infection is acute and the older is of the mild type, because the lesion of the ureter orifice may be absent or slight, and is much confused and obscured by the recent swelling, while the finding of the tubercle bacillus in a urine full of other virulent organisms is very difficult whether stains or pig inoculations be used.

The combination of the colon bacillus and the coccus has given rise to much confusion and some acrimonious discussion; because, if the coccus be grafted on the bacillus infection, the clinical picture becomes that of a very severe colon lesion plus perinephritis, and leads to the opinion that the bacillus has produced a lesion of the kidney more serious than it is in fact capable of causing. The error has been more deceptive because the observation has been apparently confirmed by the bacteriological study. When both the coccus and the bacillus are actively concerned in a kidney infection, cultures from the urine, as generally made, may show only the colon, and the coccus is overgrown and lost, or since the colon grows actively

in the urine, he soon overshadows the coccus if the urinary sediment be stained for bacteria.

This, I believe, accounts for reported cases in which a colon bacillus infection of the kidney is alleged to have been as virulent and menacing as the coccus type and to have produced similar gross lesions and required nephrectomy. The error is serious, and has led to the sacrifice of kidneys which might have been saved. It can be avoided by the careful examination of the stained sediment of *very fresh* urine, by the very careful study of cultures from fresh urine, and comparing these results with the clinical picture. The importance of recognizing the mixed lesion is very great, since it may profoundly affect the plan of treatment.

#### PLAN OF TREATMENT BASED UPON THE PATHOLOGY.

If the foregoing views of the pathology of these various lesions are sound, and though the time at my disposal precludes a discussion of the evidence on which they are based, I believe them to be thoroughly supported, it then follows that they must profoundly and fundamentally affect treatment.

The coccus type involves primarily the cortical portions of the kidney, at its worst is more acute and not very rarely fatal if left to itself, and when subacute or chronic is peculiarly liable to produce cortical, capsular and perinephric abscess. Since it involves the secreting portion of the kidney far less than does the colon type of lesion, does not importantly involve the pelvis, and since the organism does not grow as actively in the urine, it is far less amenable to treatment by drugs, and in our experience has run its course practically uninfluenced by such therapeutic methods. Both clinically and experimentally the coccus seems little, if at all, annoyed by any of the formaldehyde-containing drugs, and though it has been suggested that they may be affected to their disadvantage by some of the aniline dyes, the proof of this is still lacking.

It therefore follows that, the diagnosis of a coccus lesion having been made, the treatment, outside of general measures, is largely surgical. In the so-called hyperacute cases, which have largely abdominal symptoms and are commonly mistaken for acute pancreatitis or some lesion of the gall-bladder or stomach, it is of essential importance to demonstrate the presence of the coccus in the urine, though it may be absent in the very early stages. The decision for or against operation must be based on the estimated ability of the patient to localize the infection and avoid fatal septicemia. If operation is undertaken at this stage of the disease, nephrectomy is likely to be necessary, and will be generally successful.

The most difficult decisions are required in the subacute cases with the picture of enlarged, tender kidney, persistent fever of the remittent

type, and little change in general condition from day to day. These cases require operation, but whether it should be nephrectomy, nephrotomy or removal of the true and fat capsule and drainage of perinephric infection, will depend on local conditions, and is very difficult of correct solution. Roughly, three types of conditions will be found: (1) much perinephritis, with abscesses in the fat capsule and outside of it, but with comparatively little renal damage; these cases *may* be cured by removal of the capsules and drainage of the wound. (2) Groups of subcortical and cortical abscesses, superficial and not widespread, associated with perinephritis; these cases *may* be cured by decapsulation and local nephrotomy, but often require secondary nephrectomy. (3) Extensive widely disseminated abscess formation, occasionally areas of pyramidal necrosis and much perinephritis; these generally require nephrectomy, though wide nephrotomy may be tried.

The most interesting, because generally overlooked lesion, is that which results in the slow-forming perinephric abscess. These patients generally have a mild febrile attack with some renal pain, often resembling pleurisy, which promptly subsides, but leaves them feeling somewhat miserable with a variable unexplained fever. In the past these patients have in the course of the next few weeks slowly developed signs of a perinephric abscess and ultimately come to operation. In the light of present knowledge, the urine should early be studied for cocci, and should these be found and demonstrated to come from the kidney on the side of the symptoms, perinephric abscess may be diagnosed and drained long before the physical signs would make diagnosis possible.

The management of the colon bacillus type of kidney infection will differ radically from that applicable to the coccus type, since the lesion is most violent in the pelvis, though perhaps most serious in the tubular area. It does not and will not produce the lesions which require surgery,—perinephritis and perinephric abscess. Furthermore, since it involves the secreting portion of the kidney, it is much more readily amenable to treatment by drugs given by mouth. That the action of these drugs is largely upon the bacilli growing in the urine is probable. The only drugs which with certainty act upon the colon bacillus are those containing formaldehyde, and those only in a urine of considerable acidity. It has been shown by more than one observer that the decomposition of urotropin and similar compounds is due to the acidity of the urine, and takes place largely in the urine after excretion. If this is believed to be wholly sound, it necessarily follows that practically the whole action of these drugs takes place in the bladder, and that at the level of the kidney, and more so at the level of the convoluted tubule, there is little or no inhibitory action. This view has been confidently asserted by Hin-

man, but seems to me to be at variance with clinical observations. It is a matter of common knowledge that in a patient with a fresh, acute, severe colon bacillus infection, the administration of urotropin efficiently, with the maintenance of an acid urine, will within twenty-four hours eliminate the fever, diminish the tenderness and stop the chills. I am unable to conceive how such a result could accrue from a drug which acts only on the bacilli in the bladder, and while I am prepared to admit that its most powerful action is in the lower urinary tract, I cannot avoid the conclusion that it acts at the level of the renal pelvis, and probably even in the convoluted tubule.

There is no lesion produced by the colon bacillus which corresponds in severity to the hyperacute lesion produced by the coccus. I believe it to be doubtful whether there is any lesion of the kidney produced by the colon bacillus, which in its acute form cannot be managed by formaldehyde-containing drugs, properly administered. The serious lesions of the kidney produced by the colon bacillus, are the late result of the infection, the more or less complete destruction of the kidney, which amounts practically to a pyonephrosis. The most important discussable problems of colon bacillus infections are those concerning the final removal of the bacilli from the renal pelvis. A series of observations during the last year bear interestingly upon this question. The test of final removal of bacilli is, of course, persistently sterile bladder urine. In this series it early appeared that the most acute cases, that is to say, those with severe onset and high temperature, recover with the greatest certainty, whereas those with mild beginning were apt to become chronic. This seems to point to the development by the acute cases of a degree of immunity sufficient to protect the kidney, whereas the subacute cases develop no such immunity and the process becomes chronic. These observations, if confirmed, open up the interesting possibility of being able to increase the acquired immunity of these subacute cases by the much more carefully regulated and efficient use of vaccines. Undoubtedly the important element in winding up these infections is the very careful administration of formaldehyde-containing drugs. As now given, they generally leave a considerable period in the twenty-four hours when there can be no formaldehyde in the urine, and during this period the bacilli may well take on more active growth. I am convinced that these drugs should be given every four or five hours throughout the twenty-four, that their dosage should be checked up by the test for formaldehyde in the urine, and that their weak decomposition should be increased by the administration of acid sodium phosphate, where the urine is but mildly acid. Some cases at least of colon bacillus pyelonephritis are allowed to become chronic through inefficient medication. Of those which remain, a further

study of the possibility of vaccine therapy is clearly worth while. Where the bacilli cannot be removed from the urine relapses will occur, and in the present state of our knowledge can be avoided only by the more or less consistent administration of formaldehyde-containing drugs.

To sum up this brief survey of renal infections: The lesions produced by the coccus are far more likely to require surgical treatment because of their location and the tendency of the organism to pus formation. Such surgery, if required, will come during the comparatively early stages of the infection. As opposed to this, the colon bacillus infection produces a lesion which rarely requires surgery in its early stages, which is comparatively amenable to medical treatment, but which has a remarkable tendency to become chronic, and may in time produce a lesion of the kidney which so completely destroys that organ that nephrectomy becomes necessary.

I have omitted entirely a consideration of the treatment of renal tuberculosis, because it consists wholly in the removal of the kidney when the diagnosis has been made.

## B. DYSENTERIE AS A CAUSE OF INFECTIOUS DIARRHEA IN INFANTS.\*

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FLEXNER and his co-workers in 1904<sup>1</sup>, after a very careful study of the summer diarrheas of infancy, showed that the dysentery bacillus could be isolated from the stools of the great majority of these cases and concluded that this organism was the cause of the trouble. Doubt has been thrown on this conclusion by a number of workers who have tried to incriminate other bacteria as causing at least a certain number of cases of diarrhea and less and less attention has been paid to the dysentery bacillus. During the summer of 1914 the authors<sup>2</sup> examined the stools of infants suffering from diarrheas and showed that in the severe cases the dysentery bacillus was more constant in its presence than the other assumed etiological organisms and that the evidence in its favor as being the cause of the trouble was better than for the other bacteria. There were, however, a certain number of cases in which it could not be isolated; therefore during the summer of 1915 we decided to make a more thorough search for it, and in those cases in which it could not be

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isolated, to test for agglutinins for it in the blood.

The methods used in isolating the dysentery bacillus have been described fully in the paper referred to. Briefly they are to make streaks from the stool on previously prepared Endo-agar plates, and after these have been incubated over night, transfers are made from all suspicious colonies. The cultures that give the typical reactions in the carbohydrates, that are non-motile, and that are agglutinated by a polyvalent anti-dysentery serum (mannit-fermenting strains) are called dysentery. Several plates were made from each stool and where the first examination was negative, repeated attempts were made to isolate the dysentery bacillus.

During the summer of 1915 the hospital admitted eighty-four cases with a clinical diagnosis of infectious diarrhea. Nine of these cases have been excluded from our results, one because it was convalescing and the other eight because they were not examined bacteriologically.

In the seventy-five cases studied the dysentery bacillus was recovered from the stool in fifty-one instances, or sixty-eight per cent. In five other cases we were unable to isolate it from the stool, but found it in cultures made at autopsy, thus making a total of fifty-six instances, or seventy-four and six-tenths per cent. of the total number of cases in which the dysentery bacillus was found.

Even in typical acute cases of infectious diarrhea the dysentery bacillus may be difficult to isolate. In Table I we give the number of examinations made in order to isolate it in the fifty-six cases.

TABLE I.—ISOLATION OF THE DYSENTERY BACILLUS.

B. Dysenteriae Isolated at	No. of Cases.	Per Cent.
First examination.....	30	53.5
Second examination.....	12	21.6
Third examination.....	5	8.9
Fourth or subsequent examination.....	4	7.1
Autopsy not during life.....	5	8.9

As will be explained later, a number of cases in which we were unable to isolate the dysentery bacillus from the stools, gave a positive agglutination test for this organism, and we assumed that it was present. In order to emphasize the difficulties in the isolation of this organism, we give, in Table II, the examinations made in these cases.

TABLE II.—NEGATIVE BACTERIOLOGICAL EXAMINATIONS OF STOOLS OF CASES, THE SERUM FROM WHICH GAVE A POSITIVE AGGLUTINATION TEST FOR THE DYSENTERY BACILLUS.

No. of Cases.	No. of Examinations of the Stools.
1	2
1	3
1	4
2	5
4	6 or more

As stated in our previous paper, we have not found the mannit-fermenting group of dysentery bacilli to be constant in their action on car-

bohydrates other than dextrose and mannit, but we studied the organisms isolated and found that seventy-six per cent. belonged to the type of Hiss-Y, thirteen per cent. to the Flexner, and ten per cent. to the Strong type. From one case that showed an organism belonging to the type Flexner, a culture was isolated that in its action on carbohydrates corresponded to the Shiga type. Thinking that all of these cases might primarily be Shiga infections, with the variants appearing in greater numbers, we made a number of Endo-plates from the wall of the cecum of three cases. From each case twenty- or more colonies of the dysentery bacillus were isolated and studied, and in every instance they all belonged to the mannit-fermenting group.

In as many instances as possible the sera of those cases in whose stools we were unable to find the dysentery bacillus, were tested for agglutinins for this organism. The cultures used for agglutinogens were old laboratory stocks and cultures isolated the previous year from infants' stools. The blood was drawn at least two weeks after the onset of the disease and the test was made after it had stood one or two days in the refrigerator. The macroscopic test was used throughout the work.

The tests made on known positive cases are given in Table III. While they are few in number, they enable us to draw the conclusions that a negative reaction is of little value and that several cultures must be used as agglutinogens. The first point is especially striking in Case 2012, where a negative agglutination reaction was obtained with ten cultures, yet a positive reaction in a dilution of 1/640 was obtained with the dysentery culture isolated from the patient's stool.

In Table IV are given the results of tests made on cases not having the symptoms of infectious diarrheas. They are uniformly negative, but as only four cultures were used in all but one case, no conclusions can be drawn from these results.

The results of the tests on the fourteen cases of clinically infectious diarrhea, from the stools of which we were unable to isolate the dysentery bacillus, are given in Table V.

It will be seen that nine of these cases gave a positive reaction, and it is quite possible that more would have been positive had more cultures been used in the tests. Case 2065 is of interest, because repeated examinations of the stool were negative for the dysentery bacillus but did show great numbers of Morgan's Bacillus No. 1<sup>st</sup>; yet the serum from this case did not agglutinate two cultures of the Morgan Bacillus in dilutions of 1/20, while it agglutinated two cultures of the dysentery bacillus in dilutions of 1/320. On examination of Tables III and V it will be seen that Culture IX gave the greatest number of positive results, but it would not be safe to use this culture alone, for in two cases

TABLE III.—AGGLUTINATION TESTS ON KNOWN POSITIVE CASES.

Case Number.	Clinical Diagnosis.	B. Dysenteriae isolated from Stool.	LIMIT OF AGGLUTINATION FOR DYSENTERY STRAINS.											
			VII. Flexner- Harris.	VIII. Hiss-Y.	IX. Strong.	X. Strong.	XI. Flexner.	XII. Flexner.	2012 Own Culture					
2012	Infectious diarrhea	Yes	20—	40—	20—	40—	20—	20—	20—	20—	20—	40—	40—	640
2045	"	"	.....	.....	.....	.....	20—	20—	20—	.....	20—	.....	.....	.....
1st test														
Aug. 4														
2045	"	"	.....	.....	.....	.....	30—	.....	30—	30—	30—	.....	.....	.....
2d test														
Aug. 15														
2097	"	"	20—	320	320	80	20	80	320	40	160	160	320	
2103	"	"	20—	320	320	80	20	160	20	160	20—	40	80	
2123	"	"	20—	40—	20—	40—	320	40	320	40	20	20	640	
2186	"	"	.....	40—	.....	.....	40—	40—	40—	40?	40—	40—	40—	

In tables III, IV, and V, the figures are the denominators of the highest dilution in which agglutination occurred. Those figures followed by a minus indicate that there was no agglutination in this the lowest dilution used. For example, 320 indicates that there was agglutination in a dilution of  $\frac{1}{320}$  and 20— indicates that there was no agglutination in a dilution of  $\frac{1}{20}$ .

TABLE IV.—AGGLUTINATION TESTS ON KNOWN NEGATIVE CASES.

Case Number.	Clinical Diagnosis.	B. Dysenteriae isolated from Stool	LIMIT OF AGGLUTINATION FOR DYSENTERY STRAINS.											
			VII. Flexner- Harris.	VIII. Hiss-Y.	IX. Strong.	X. Strong.	XI. Flexner.	XII. Flexner.	2012 Powers."					
2003	Fermental diarrhea.....	No	.....	60—	.....	30—	30—	30—	30—	30—	30—	30—	30—	....
2076	"	"	.....	30—	.....	30—	30—	30—	30—	30—	30—	30—	30—	....
2107	"	"	.....	20—	.....	20—	20—	20—	20—	20—	20—	20—	20—	....
2125	Regulation of feeding.....	"	.....	20—	.....	20—	20—	20—	20—	20—	20—	20—	20—	....
2127	"	"	.....	20—	.....	20—	20—	20—	20—	20—	20—	20—	20—	....
2131	Fermental diarrhea.....	"	.....	20—	.....	20—	20—	20—	20—	20—	20—	20—	20—	....
2249	"	"	.....	40—	40—	40—	40—	40—	40—	40—	40—	40—	40—	40—

TABLE V.—AGGLUTINATION TESTS ON CLINICALLY POSITIVE BUT BACTERIOLOGICALLY NEGATIVE CASES.

Case Number.	Clinical Diagnosis	B. Dysenteriae isolated from Stool	LIMIT OF AGGLUTINATION FOR DYSENTERY STRAINS.											
			VII. Flexner- Harris.	VIII. Hiss-Y.	IX. Strong.	X. Strong.	XI. Flexner.	XII. Flexner.	2012 Powers"	Morgan I & II				
2001	Infectious diarrhea	No	.....	20—	20—	20—	.....	20—	.....	20—	.....	.....	.....	.....
2028	"	"	.....	160	160	320	.....	80	.....	80	.....	.....	.....	.....
2040	"	"	.....	50—	.....	50—	50—	50—	50—	50—	.....	.....	.....	.....
2062	"	"	.....	40	40	160	.....	20—	.....	20—	.....	.....	.....	.....
2065	"	"	.....	320	.....	320	80	20	.....	.....	.....	.....	20—	.....
2067	"	"	.....	50—	.....	200	200	50	.....	50	.....	.....	.....	.....
2072	"	"	.....	20	40	320	.....	80	.....	80	.....	.....	.....	.....
2074	"	"	.....	20	.....	160	320	40	.....	40	.....	.....	.....	.....
2128	"	"	.....	40	.....	320	80	20	.....	.....	.....	.....	.....	.....
2152	"	"	.....	20—	.....	20—	.....	20—	.....	20—	.....	.....	.....	.....
2179	"	"	.....	50—	.....	50—	50—	50—	50—	50—	.....	.....	.....	.....
2244	"	"	40—	40—	80	320	80	40—	40—	40—	40—	40—	40—	.....
2253	"	"	40—	40—	320	80	40—	320	40	40—	40—	40—	40—	.....

that were known to be positive, this organism was not agglutinated in low dilutions.

The following observations on *Bac. welchii* are of some interest, for it is still believed by some<sup>4,5</sup> to be one cause of infectious diarrhea. Using the milk test, seventeen of our cases of dysentery were negative for *Bac. welchii* on the first examination. At the end of a week five of these cases showed a positive reaction, at the end of the second week the reaction was positive in

ten cases, by the end of the third week fifteen were positive, and at the end of a month all the cases gave the positive milk test. This confirms our statement of the previous year that while the milk test for *Bac. welchii* may be negative during the acute stages of infectious diarrhea, it tends to become positive as the patient improves. We have yet to see one of these cases in which we could get any evidence that this organism is the cause of the disturbance.

## SUMMARY AND CONCLUSIONS.

Negative bacteriological and agglutination tests for the dysentery bacillus in cases of infectious diarrhea of infancy are of comparatively little value, and in making the agglutination test a number of cultures must be used for the agglutinogens. In spite of these facts the dysentery bacillus was isolated from seventy-four and six-tenths percent of the cases studied. Only fourteen of the nineteen bacteriologically negative cases were studied for agglutinins, and sixty-four and three-tenths per cent. of these, or twelve per cent. of the total number, gave a positive reaction, thus making a total of eighty-six and six-tenths per cent. of the seventy-five cases in which we have good evidence that the dysentery bacillus was present. We have been unable to obtain any evidence that *Bac. welchii* is ever the cause of infectious diarrhea and all of our results point to the dysentery bacillus as the etiological agent. In our cases all these bacilli belonged to the mannit-fermenting group.

In spite of the apparent scarcity of dysentery bacilli in the feces, we believe that they are the cause of infectious diarrhea of infancy for the following reasons: (1) their universal association with the condition; (2) the great numbers of these organisms in the mucosa of the cecum; (3) the sick individual produces immune bodies against them while such bodies, specific for the other assumed etiological agents, have not been demonstrated; (4) experimentally they are known to produce a diarrhea.

We wish to thank Dr. Henry I. Bowditch and the other members of the staff of the Boston Floating Hospital who did everything in their power to aid us in making this study.

## REFERENCES.

- <sup>1</sup> Flexner: Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy from the Rockefeller Institute for Medical Research, 1915.
- <sup>2</sup> T. Brock and Norbury: BOSTON MED. AND SURG. JOUR., 1915, Vol. cxxiii, p. 286.
- <sup>3</sup> Morgan: Brit. Med. Jour., 1906, Vol. i, p. 908, and 1907, Vol. ii, p. 16.
- <sup>4</sup> Morse: Am. Jour. Med. Sci., 1915, Vol. cxlix, p. 17.
- <sup>5</sup> Sylvester and Hibben: Arch. Ped., 1915, Vol. xxxii, p. 457.

## INTRASPINAL INJECTIONS OF BICHLO-RIDE OF MERCURY.

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At a recent meeting of the section on medicine of the New York Academy of Medicine, I reported forty cases of spinal syphilis which had been treated by the intra-spinal administration of mercurialized serum, and five cases which had been treated by the direct intra-spinal injection of bichloride of mercury. The forty cases

I was able to give fairly definite reports on, and recited some conclusions. Since then I have treated twelve additional cases by the direct administration of bichloride of mercury into the spinal fluid.

The method of administration was as follows: Weigh out one gram of Merck's bichloride of mercury; dissolve this in 770 c.c. of distilled water; sterilize the whole. One cubic centimeter of this solution contains .0013 gram of bichloride of mercury, which is equal to 1/50 of a grain. Draw off 15 c.c. of spinal fluid. Discard 5 c.c., and to the remaining 10 c.c. add 1 c.c. of the bichloride solution previously prepared. Then re-inject directly into the spinal canal, very slowly, the whole 15 c.c. The time consumed in performing this re-injection should be about four minutes. To minimize the handling of the solution and so decrease the chances of infection, it is best to draw the 1 c.c. of the bichloride solution directly into the syringe, and mix the two solutions there in the hypodermic. Then re-inject the entire 15 c.c. The patient should then be put back to bed, and for the first five or six hours, the foot of the bed should be elevated. This precaution is taken in order to diminish the tendency of the patient to acquire a headache.

The twelve treated all come under the head of syphilis of the nervous system. They consisted of cases of general paresis, tabes, taboparesis, hemiplegia, optic nerve atrophy, and one case of brain syphilis with complicating hemiplegia. These cases were given either 1/64 or 1/50 of a grain of bichloride of mercury, at each intra-spinal injection. The usual plan was to give 1/64 at the first dose, and then 1/50 at subsequent doses. In a few cases, however, the maximum dose of 1/50 was given at the beginning. The injections were approximately at intervals of two weeks; in a few instances it was not possible to give them exactly on the day, but an effort was made to have the dosage as nearly as possible every fifteen days. All of these patients were at the same time being given a mixed antisyphilitic treatment, that is to say, potassium iodide by mouth and on the alternate weeks hypodermic injections of the salicylate of mercury, of a grain or less. In a few of these patients it was not possible to obtain definite results, but in the large majority improvement was manifest. The reaction was nearly always present, of varying extent. In some, the pains became very severe, lasting two or three days, in others the shooting pains in the legs were moderately increased for a few hours. In a very few of the cases there was persistent after-vomiting. In one there was very marked involvement of the sphincters. This patient lost control of his bladder for three weeks, and of his intestinal tract for two weeks. He is, however, growing stronger and there is every indication that in time he will control both functions.

The first case, J. C., was one of tabo-paresis, who complained of pains in both legs and had been unable to walk for the past ten years. The laboratory reported a positive Wassermann on both the blood and the spinal fluid, a cell count of 23 and a ++ globulin. This patient was given five injections of bichloride of mercury, the first two 1/64 of a grain, and the last three 1/50 of a grain. After the second treatment the pains in the legs stopped and the patient felt distinctly better. At the end of the fifth injection, December 1, the Wassermann was still positive, the globulin ++, but the cell count had dropped to 11, and the patient considered that he had been very materially helped.

The second case, S. V., was a man of 49, who admitted a specific history twenty years ago. His chief complaint was nervousness, weakness, and inability to use his hands as a result of a very marked tremor. His pupils were Argyll-Robertson, his knee jerks were present, and there was a marked facial tremor. The laboratory reported on the third of September, the blood Wassermann negative, the spinal fluid Wassermann positive, a ++ globulin, and 130 cells. He was at once started on bichloride of mercury, 1/50 of a grain, given in his own serum. A marked reaction followed with pains in the legs and vomiting. Two weeks later he was given 1/64 of a grain of bichloride of mercury directly in the spinal fluid, and two weeks after, a third injection of 1/50 of a grain in the spinal fluid direct. Following the third dose, there was some headache, pain and marked shooting pains. On November 19, he was given the fourth dose of bichloride of mercury in the spinal fluid, from which he had a slight reaction. At that time the laboratory reported ++ globulin, positive Wassermann and only 9 cells. The reaction in this patient was more marked after the administration of the bichloride of mercury directly into the spinal fluid than in the one dose administered from the mercurialized serum. The character of the reaction in his case was wholly one of headache, nausea and pain. There was no interference with the urine or bladder. On the twenty-third of November this patient said the tremor was much less marked, so that now he could button his coat, whereas formerly he was unable to do so. He had no pains in his legs and considered that he was very much benefited.

The third case, that of F. S., was a man of 22, who admitted a specific history three years ago, and who, three months ago, sustained a hemiplegia of the left side. He complained of very severe boring pains in the back of the head, and gave the appearance of a man who was sick and suffering. The laboratory reported a weakly positive blood Wassermann, a moderately positive Wassermann of the spinal fluid, a ++ globulin, and 330 cells. He was given two intra-spinous treatments of 1/50 of a grain each. As a result there was no improvement in the paralysis, but the headache completely disappeared. His spinal fluid remained positive, but the cell count dropped to 160. The reaction in this patient was more marked than in any of the others, as he had terrific pains in both legs.

The fourth case, M. L., a man of 42, admitted a specific history twenty years ago, and for the past four years had complained of shooting pains in the legs and difficulty in walking. He has pupillary

changes, optic nerve atrophy, absent knee jerks, and a Romberg. A few months ago, when he began to lose his eyesight, he was given "606"; the loss of eyesight became much worse. He was given 1/50 of a grain of bichloride of mercury intra-spinaously twice, and at the end of a month his cell count dropped from 37 to 13, the Wassermann remained positive and the globulin +. He had a fairly severe reaction after each dose, but no sphincter involvement. At the end of a month he was of the opinion that the treatments had helped the pains in the legs, but felt that the reaction was so great that he was not willing to have any further treatment.

#### CONCLUSIONS.

The conclusions which I have reached in the twelve cases reported here are neither final nor conclusive. They are, however, worthy of consideration. I fully realize that the number of cases is not sufficient, and that the time in which they were followed is not long, nor were a sufficient number of intra-spinous injections administered. However, the conclusions drawn were as follows:

1. The spinal fluid Wassermann remained unchanged even after three or four treatments.
2. The globulin did not undergo much, if any, change; occasionally a ++ became a +.
3. The reaction after the treatment was usually not severe, and generally amounted to shooting pains in the legs of marked severity.
4. There was always a possibility of getting a considerable degree of rectal or bladder sphincter disturbance which was, however, temporary.
5. The cell count was almost always lowered.
6. The shooting pains in the legs were almost invariably relieved.

In other words, the administration of bichloride of mercury directly into the spinal fluid gives practically the same results as the administration of mercurialized serum. It has the advantage over the latter of simpler technic, shorter methods, and easier administration, with less opportunity of infection. The great advantage, to my mind, lies in the fact that the operation is simpler, and there is less involvement on the part of the laboratory. Both methods, that of the mercurialized serum and that of the bichloride directly injected into the spinal fluid, can be considered as valuable substitutes for the administration of salvarsan. Whether the results will be as permanent as the latter remains to be seen.

It is certainly fair to say that no ill results can accrue from the direct intra-spinous injection of 1/50 of a grain of bichloride of mercury in syphilis of the nervous system.

It is well to make the initial dose small; it is therefore better to begin with a dosage of 1/64 of a grain and later increase it to 1/50.

In no instance was any change manifest in the reflexes, but change was evident in tremors, in the pains, in the spinal fluid content, and especially in the general condition of the pa-

tient. There is no doubt that any of these injections, salvarsan, mercurialized serum, or bichloride of mercury, have a very good moral effect on these patients, and for that reason alone, should be encouraged.

### Clinical Department.

#### LOSS OF SIGHT FROM RETROBULBAR NEURITIS DUE TO ACCESSORY SINUS DISEASE, WITH REPORT OF TWO CASES.\*

BY LEON E. WHITE, M.D., BOSTON.

**RETROBULBAR NEURITIS** is, as the name indicates, an inflammation of the optic nerve behind the eye. The optic nerves, after mingling and crossing in their peculiar manner at the chiasm, pass through a bony canal, the canalis opticus, to the eye. This canal varies greatly in position, being, in some cases, separated from the sphenoidal sinus or the posterior ethmoid cell by only a tissue paper thickness of bone. The relations of this canal to these sinuses are vital to a clear comprehension of the way infection reaches the nerve. The body of the sphenoid bone is usually hollowed out by the two sphenoidal sinuses, but in some cases these sinuses are rudimentary and only fill the lower anterior portion of the body while the posterior ethmoid cells extend externally and occupy a large portion of the body of the sphenoid.

Onodi, of Budapest, has written on and studied this relationship most painstakingly and efficiently. In 1908 he said, "For ten years I have been investigating the more delicate construction of the accessory cavities and the relation of the optic nerve to them." His results furnish the anatomic foundation for the theory of blindness from accessory sinus disease. He published an atlas in 1911 with natural size plates made from photographs showing 38 different morphologic findings on the relations of the optic nerve to the sphenoidal sinus and ethmoid cells.

Normally the canal for the optic nerve is separated from the sphenoidal sinus and posterior ethmoid cell by a thin but dense layer of bone; otherwise disturbances in vision would be much more frequent, as we all see cases with marked disease of these sinuses yet with perfectly normal vision. The unusual cases, those with very slight, or, possibly through some dehiscence, no protection to the nerve, are the ones where visual disturbances may be expected.

To quote Onodi again, "Our observations have shown that the wall between the last eth-

moid cell and the canalis opticus is nearly always as thin as tissue paper; dehiscences in the walls of the accessory cavities have been found, there the diseased mucosa may come into direct contact either with the dura mater or the optic nerve sheath."

In 1886 Berger and Tyman reported their findings in the examination of the differences in the partition wall between the optic nerve and the sphenoidal sinus. Thus, in one section the partition on both sides was of tissue paper thickness; another section showed both sides with very thick walls, while a third section showed one side with tissue paper thickness while on the other side there was a thickness of 7 mm. In looking at many illustrations shown by the various writers on the subject since that time, one sees again and again this lack of uniformity.

Now given an optic nerve with only this slight protection one readily sees how an inflammatory process in an adjacent sinus may be directly transmitted to the nerve, or the pressure from the swelling in such a process may cause its constriction with temporary, if not permanent, blindness. Should this pressure be long continued, optic atrophy must result. According to Onodi's findings, transmission of the inflammation from the posterior ethmoid cells as well as from the sphenoidal sinus to the optic nerve is possible, as well as the pressure from circulatory disturbances. A periostitis in a sinus may lead directly to a perineuritis.

In an article read before the ophthalmological section of the American Medical Association at San Francisco last summer by Dr. H. H. Stack, 88 cases from the literature on this subject are tabulated, so the condition does not seem to be a very common, or at least not an easily discoverable, cause of blindness. Of the cases reported many show bilateral visual disturbances from unilateral accessory sinus disease.

For the origin and explanation of this contralateral and double-sided blindness with one-sided sinus disease Onodi gives the following 11 anatomic findings:—

1. The left posterior ethmoid cell constitutes the medial wall of the right canalis opticus.
2. The right posterior ethmoid cell constitutes the inferior and medial wall of the canalis opticus on both sides, and the wall of the entire sphenoid sinus.
3. The right posterior ethmoid cell constitutes the wall of the entire sphenoid sinus.
4. The right posterior ethmoid cell constitutes the wall of the right third and the middle third of the sphenoid sinus.
5. The left sphenoidal sinus constitutes the inferior wall of the right canalis opticus.
6. The right sphenoidal sinus borders medially only the left optic nerve.
7. The left sphenoidal sinus constitutes the inferior wall of the right canalis opticus, and the wall of the right third and the middle third of the sphenoid sinus.

\* Read before the New England Otological and Laryngological Society at Boston, January 18, 1916.

8. The left sphenoidal sinus constitutes the inferior and medial wall of the canalis opticus on both sides and the wall of the entire sulcus opticus.

9. The right posterior ethmoid cell constitutes the larger part of the inferior and medial wall of the canalis opticus.

10. The left sphenoidal sinus constitutes the inferior and medial wall of the left canalis opticus, and the inferior wall of the right canalis opticus, also the wall of the entire sulcus opticus.

11. The right sphenoid sinus constitutes the wall of the middle third of the sulcus opticus.

In addition to the variations above described, there has been advanced a theory by Vossius to explain bilateral optic neuritis from unilateral accessory sinus disease. He says that "where the distance between the nerves near the intracranial opening of the optic canal is scarcely 1 cm., and this narrow space filled in by very loose tissue arising from the meninges, which is very well adapted to the spread of the inflammation, the disease can at this point spread immediately from one nerve to the other."

Normally, according to Loeb, "the optic nerve may be described as passing externally from the chiasm along the roof or lateral wall of the sphenoid and in close relation with the ethmoid labyrinth only at the posterior external angle of the last cell."

"Where this normal relation exists there is only the slightest possibility of any danger to the nerve in suppuration confined to the ethmoid cells." "But where the posterior ethmoid cell replaces a portion of the sphenoidal sinus, the optic nerve runs close to, and along the external wall of this ethmoid cell (as in two of the thirty specimens he studied) and its vulnerability is correspondingly heightened in view of the greatly increased portion exposed."

This relationship probably explains cases of optic neuritis without an accompanying sphenoiditis. The pathological findings in a majority of the cases make the diagnosis easy, yet in many the findings are slight, frequently only a thickened mucosa, as in my second case. The doubtful ones, then, where little or nothing can be found, call for special consideration. The findings on x-ray examination in these doubtful cases are rather disappointing. "X-ray photographs," says Hoeve, "although excellent diagnostic aids in accessory sinus diseases, give us by no means positive evidence. In the first place, all cases of sinus disease do not throw a shadow on the plate. and, second, as our information is usually obtained by comparing the two sides, in cases where one side is darker than the other, it is sometimes impossible to say whether only one side is affected or whether both sides are diseased, one side more than the other."

Loeb, however, reports an instructive case in which the radiograph showed both ethmoids obscured and in which, on operating, he found enough trouble to warrant his diagnosis of an

acute ethmodinitis just becoming purulent. His case was of five weeks' duration with increasing loss of vision for three weeks. One week after removal of both middle turbinates and cleaning out the ethmoid labyrinth the vision was about normal. In all cases I believe a radiograph should be made, for some abnormality might be found pointing, at least, to some vulnerable condition. The diagnosis in many cases is made largely from the visual disturbances. Blindness, in whole or part, comes on rather suddenly, as a rule. Most patients describe it as a "fogginess." The visual field is usually characteristic. The presence of a scotoma (from a Greek word meaning 'shadow') is the most definite and reliable sign of retrobulbar neuritis.

The increased pressure from the inflammation within the accessory sinuses causes a restriction of the visual field. At first the loss of vision is usually for colors, but if the case progresses, there may be eventually entire loss of sight. Enlargement of the blind spot or peripapillary scotoma is, according to Dr. J. van der Hoeve, of Utrecht, (among many other authorities) a most valuable and early symptom of optic neuritis from diseases of the posterior accessory sinuses.

DeKleyn investigated this symptom in 52 cases of posterior accessory sinus disease and found it present 47 times, while in large number of cases with frontal or antrum disease he found the blind spot normal. In fact, the presence of an enlarged blind spot enabled DeKleyn in several cases to make a diagnosis of posterior accessory sinus disease which he verified by operation.

"Enlargement of the blind spot for white and colors points," says J. van der Hoeve, "with great probability to diseases of the posterior nasal accessory sinuses and justifies operative interference for this disease if there are no other causes for its presence." "Early treatment can cure the optic nerve affection."

The first case had so nearly lost her vision when first seen by Dr. Chandler that no visual field could be taken. The second case showed a scotoma for both form and color. Deep-seated pain is a frequent but not constant symptom.

**CASE 1.** Miss. R. S., age 23, a student, was sent to me by Dr. H. B. Chandler in April, 1911, for an examination of her accessory sinuses. She seemed in fair health. Had just recovered from an appendix operation. Left eye nearly blind one year. Blindness came on gradually and was not affected by colds. Dr. Chandler reported the loss of vision to be due to chronic retrobulbar neuritis. The patient complained of violent left-sided pain of almost daily occurrence which seemed to be behind and below the eye and to extend nearly to the ear. She had some drooping in the throat; was not subject to colds. Had several attacks of hay fever. Nasal examination negative excepting for a white streak of secretion far back in the left side of the nose, apparently coming from the region of the sphenoid. This, with the pain and Dr. Chandler's report, seemed to warrant a diagnosis of probable

sphenoidal sinus disease, and I advised an exploratory operation. For various reasons this advice was not acted upon, and after seeing the patient three or four times and relieving the pain somewhat by local treatment, she was lost sight of for seven or eight months. Then she reported and said that, acting on the advice of her family physician, she went to one of our charity hospitals for treatment, but after being examined by many doctors and having several x-ray plates made, her sinuses were reported to be normal and nothing in an operative way was advised. The vision was unchanged. The headaches not so bad. I have not seen her since, but desiring to learn of the subsequent course of the case, I wrote her six weeks ago and her report is so complete that I give it exactly as written:—

"Winter of 1911-1912 spent in North Carolina. Sinus trouble improved; eye same. Vision in left eye blurred. Dr. Chandler examined in June 1912, said defect in sinus. Eye normal. Had tonsils removed.

"Winter of 1912-1913 went to Texas; high, dry climate. Sinus trouble cleared entirely. Eye remained about same.

"Summer of 1913. Boston. Old trouble returned. Eye seemed worse. Dr. Chandler again claimed eye normal.

"Returned to Texas, 1913-1914. Sinus trouble improved. No pus. No headaches. Eye remained about same. No pain.

"During summer of 1914 return of trouble while in Boston, and examination of eye showed gradual loss of sight. No sight in eye except of light and darkness.

"Winter of 1914-1915 in Texas. Bad rains, damp weather. Serious headaches. Return of pus discharge from left nostril. Specialist in El Paso said the eye was not affected by sinus trouble but that there was a defect in eyeball which had always been there.

"July 1, examined by Dr. W. L. Ballinger of Chicago. X-ray showed ethmoiditis.

"July 15, examined by Dr. Chandler, who still claimed a perfect eyeball, and said trouble all caused by sinus.

"Sept. 1 returned to Chicago and commenced serum treatment. Noticeable improvement from fourth injection of serum. Serum injected to the amount of 22 drops with serum reaction. For six weeks no flow of pus.

"Came to California for mild weather. Have had no headaches. No discharge of pus. Am feeling very well. The condition of the eye is the same. No improvement, the only sight is of light and darkness. Dr. Kyle of Los Angeles is continuing serum treatment for five more injections."

From the foregoing I think we may say that this patient probably had disease of the posterior ethmoid or sphenoid when first seen by me, and that this condition was responsible for her blindness. In the summer when she went to the hospital and was examined and x-rayed the trouble was quiescent, but recurred during the following winter, and thereafter as indicated in the patient's history of herself.

CASE 2. Mr. C. J. McC., age 25 years, postoffice clerk, was referred to me by Dr. W. J. Daly on

November 4, 1913. The patient seemed in good general health, habits good, did not drink or smoke. Urinary analysis negative; was not subject to colds or catarrhal trouble. Had no pain. His difficulty started with a "fogginess" in his left eye six days ago; vision now about 1/10. The right eye, also, for the past three days has had the "fogginess" so that he had to be led into the office. On referring this case to me, Dr. Daly said it was a case of retrobulbar neuritis and most urgent, as the patient would be hopelessly blind within a week unless relief could be immediately obtained. He reported that both fundi showed increased capillarity and blurred edges. The visual field showed a large central scotoma for white and colors.

After cocainizing the nose, I was able to see the sphenoidal openings. The right sinus, as far as I could determine, was absolutely normal, while the only indications of a pathological condition in the left was a slight congestion about the opening. On probing, the right seemed of normal depth while the left was shallower, the probe entering it less than half the distance on the right. There was no pus present. The shallowness seemed to me to be a congenital condition, but I suggested an x-ray examination. The case was accordingly referred to Dr. Percy Brown, and his report is given in full as follows:—

"The patient is somewhat asymmetrical as to the anterior accessory sinuses of his nose, but I cannot therein find any appearance roentgenologically to account for his symptoms, in fact, the asymmetry observed here involves the right rather than the left side. Posteriorly, however, the patient presents a distinctly unusual appearance with reference to his sphenoid upon the left. The conformity of the sphenoidal sinus is distinctly unusual in that its cavity is, apparently, obliterated at a point which is usually but half the dimension (antero-posteriorly) of the normal sphenoid. In other words, that portion of the sphenoid which usually lies below the floor of the sella is here completely occluded. Whether or not this occlusion is produced by infiltration or whether it is merely the relative occlusion of an anatomical anomaly, it is hard to say, but I should be inclined to think that a sphenoid so unusual in its contour, and thus so confined to its extent, would be easily the locus for infiltration, inflammatory or otherwise.

"I see no evidence of a neoplastic nature to account for the above sphenoidal condition. The sella itself measures in both diameters about as normally seen. Its floor is thin, and, as I have said, is superimposed upon that portion of the sphenoid which is apparently occluded. Its posterior clinoid processes are pronounced, possibly, to an extent which might impinge upon an otherwise normal hypophysis, but I am not inclined to lay much stress upon such a possibility here. The posterior ethmoidal cells are relatively clear, so far as I can see."

On receiving this report, I at once opened the patient's left sphenoid. The operation required about one-half hour and consisted in the removal of the lower posterior portion of the middle turbinate, after which the anterior wall of the sinus was removed with a curette and punch forceps. Within the sphenoid there was neither pus nor granulation tissue. The only abnormality was a slight bogginess of the mucosa and the shallowness.

The post-operative treatment consisted in the daily douching of the sinus through a long silver cannula with a hot alkaline solution.

Dr. Brown has made three examinations since the operation, endeavoring to determine if there was any change in this antero-posterior diameter. His second report is as follows:—

"The roentgenological situation in the case of the patient at the time of my second examination still, of course, has as its basis the appearances seen at the first examination, with especial reference to the sphenoidal sinus. The partition subdividing the sphenoid, however, seems not to be so strongly marked as it was at the first examination."

Twenty-four hours after the operation the vision commenced to improve. The "fogginess" about which the patient complained he reported as lessening. When I was operating on him he said in regard to his vision that he could not see his baby's face,—face and form were a blur. Dr. Daly made almost daily examinations of his vision and his recovery was steady and rapid.

Before taking one of the last radiographs, I put a probe into the left sphenoid, and, on looking at the plate, thought it must have slipped out as there seemed to be a good-sized sinus beyond it. On examining the sinus a few days ago, I bent my cotton stick and was able to pass it external to and over 1 cm. beyond what I had previously taken to be the back wall. This shallowness thus seems to be due to a very unusual twist in the sphenoidal septum. Then I probed the right sinus again and found that its depth corresponded to that on the left found by bending the cotton stick around this crooked septum.

The interesting points in the case seem to be as follows:—

1. Only one sinus was affected while both eyes showed the neuritis.
2. The findings on examination of the sinus were slight compared with the seriousness of the inflammatory process.
3. The question as to whether the shallowness was congenital or pathological.
4. The rapidity with which the vision returned.

The point I wish to emphasize in this paper is the insignificance of the findings in many of these cases and the necessity for prompt interference. That these views may not seem too personal and to be derived from a very limited experience, I wish to cite the conclusion of Drs. Smith and Onodi.

"In my opinion," says Dr. Harmon Smith (in an article written in 1911), "it is unquestionably a justifiable procedure to operate on these sinuses when every other possible cause of the neuritis has been eliminated. Even where there is no local or intranasal evidence of the existence of an empyema, such interference may be justified as an exploratory operation, and, when performed by one familiar with the anatomy, it is without material danger to the patient. The mere depletion incident to such an operation will in itself prove of value if the neuritis is due to the pressure of a diffuse inflammation."

"I must emphasize," says Onodi, "this fact:

that in those cases of sight derangements in which the oculist cannot confirm the cause and the suspicion of nasal connection exists even though the findings be negative, it seems best to take explorative measures, and to seek the cause in the accessory sinuses, whether or not the presence of latent foci is suspected."

The excellent results following operation in many of the cases reported where the findings were almost nil have amply confirmed these statements.

#### BIBLIOGRAPHY.

- Onodi: "Die Optic Nerve and the Accessory Cavities of the Nose." Annals of Otolaryngology and Laryngology, 1908.  
 Onodi: Das Gehirn und die Nebenhöhlen der Nase. 1908.  
 Onodi: Die Eröffnung der Schädelhöhle und Freilegung des Gehirns von den Nebenhöhlen der Nase aus. 1911.  
 Berger and Tyrman: "Die Krankheiten der Keilbeinhöhle und des Siebbeinlabyrinths." 1886.  
 Stach, H. H.: "Sudden Blindness Due to Suppuration of the Nasal Accessory Sinuses with Report of Three Cases." Journal A. M. A., Vol. Ixv, No. 18.  
 Vossius: Beitrag zur Anatomie des N. Opticus. Graefe's Archiv f. Ophthalmologie, Vol. xxix, Part 4.  
 Leob: "A Study of the Anatomic Relations of the Optic Nerve to the Nasal Cavities and the Nose." Annals of Otolaryngology and Laryngology, Vol. xviii, 1909.  
 Leob: "The Influence of the Nose on Eye Affections as Evidenced by a Case of Bilateral Blindness and One of Unilateral Seizing Scptoms Cured by Operation on the Ethmoid Cells." Trans. Am. Acad. Ophthal. 1914.  
 de Kleyn: "Examination of the Blind Spot, an Early Symptom in the Diagnosis of Optic Nerve Affections, Due to the Posterior Nasal Accessory Sinuses." Archives of Ophthalmology, 1911.  
 de Kleyn: Beitrag zur Kenntnis der Schmerzerkrankungen bei Erkrankung der Nebenhöhlen der Nase. Graefe's Archiv für Ophthalmologie, Vol. Ixxv, 1910.  
 Smith: "Some Cases of Optic Neuritis Benefited by Operation upon the Sphenoidal Sinus and Posterior Ethmoid Cells." New York Medical Journal, Vol. xiv, 1911.

#### Reports of Societies.

#### BOSTON SURGICAL SOCIETY (INCORPORATED).

##### MEETING NO. 9.

A STATED meeting was held on Monday, January 3, 1916, at the Harvard Club of Boston.

The first paper of the evening was read by Dr. F. J. COTTON, on "The Disinfection of Septic Joints."\*

##### DISCUSSION OF DR. COTTON'S PAPER.

DR. PORTER said that he had been much impressed with the inadequacy of drainage of joints, particularly of the knee joint. By examination of the specimen after amputation, it was evident that a stagnant pool of joint fluid and exudate remained in the deeper portion of the joint, and that below the level of this fluid caries of the cartilage and of the bone went on, even though the drier portions of the joint were free from disease. He advised obtaining complete drainage in severe suppurative cases by division of the patella tendon, or by low lateral incision over the condyles. He also advised the use of rubber dam in preference to tubes for drainage. In very bad aureus infections he would use temporary drainage; in less severe cases he believed the irrigation method of Dr. Cotton was satisfactory.

\* See JOURNAL, page 779.

DR. PORTER stated that in one infected knee-joint he had used injections of ether in the joint cavity, but was unable to state the end result.

DR. SCUDER stated that he felt it was a complicated problem, and that one must consider the systemic as well as the local condition in a given case. In some cases he felt that the systemic condition demanded radical treatment of the joint, as a life-saving measure, and that function in these cases was a secondary consideration. In such cases he believed that effective drainage of the joint was the principal object to be attained.

DR. LOVETT called attention to the very virulent forms of acute arthritis in very young children, and believed that no palliative treatment would probably be effective in such cases.

DR. LINCOLN DAVIS reported six cases of infected knee-joint operated on at the Massachusetts General Hospital, and several at the Eye and Ear Infirmary. In only one case was there a good functional result. The results obtained by the usual methods were very poor. Amputations were frequently necessary.

Under these circumstances he thought we should welcome DR. COTTON's method and give it a thorough trial, although theoretically one might doubt the efficacy of disinfection obtained by using 1:15,000 corrosive sublimate solution.

DR. PACKARD stated that formerly he used drainage and joints did badly, but later he had restricted his treatment to aspiration and instillations of iodoform, and that he believed this to be the better treatment.

DR. BOTTOMLEY agreed with Dr. Porter in feeling that the location of our incisions for the drainage of infected knee-joints was often faulty and consequently ineffective. While this fact might explain some of the bad results that follow our present methods of treatment, yet it did not explain them all, and he was ready to adopt Dr. Cotton's suggestions, even though skeptical of the real efficiency of disinfection.

Dr. Bottomley asked Dr. Cotton if the latter made a point of keeping the joint surfaces apart by extension applied immediately (as used by DR. J. B. Murphy), or if Dr. Cotton used any particular form of temporary fixation of the joint in addition to the other measures employed by him.

DR. OSCOON called attention to the fact that the conservative method advised had been advocated fifteen years before, by Goldthwait, for acute gonorrhœal joints, using an irrigation of hot salt solution at 112°. He advocated this treatment at first, and more radical drainage if the further progress of the case demanded.

In closing the discussion, DR. COTTON made the following suggestions:

1. 1:15,000 corrosive solution, he believed, was effective in retarding the growth of cocci, even if it did not kill. Resistance of the joints he believed to be an important factor.

2. A very important factor of the method of treatment was that the incision should be efficient and that the irrigation should continue for at least fifteen minutes with a hot, strong stream, allowing the joint to distend and collapse. The corrosive solution was then to be washed out with salt solution, the edges of the capsule brought in close approximation in two layers, and the skin wound left open, as suppuration always took place in the areolar tissue.

3. DR. COTTON admitted that none of the cases he reported were of the peracute type, but maintained that most of them showed severe constitutional symptoms. He called attention to the fact that one case died of meningitis after the knee-joint had been so treated, but at autopsy the joint appeared to be free from infection.

4. DR. COTTON advised the use of the irrigation method first in any given case, but recommended a good free drainage if the irrigation method failed.

5. He pointed out that some joints, like the hip, because of the lack of a distensible capsule, were not suited to this method of treatment.

6. In his experience extension in after-treatment was often unnecessary. He had been surprised at the freedom from spasm and from pain in these joints after irrigation.

7. DR. COTTON used campho-phenol (49.5% carbolic) in certain open drained cases as an instillation. This is a non-corrosive, non-poisonous, phenol disinfectant. He further pointed out that all of the cases that he had reported were cases of hematogenous infection, and that recovery after even efficient drainage almost invariably implied ankylosis.

DR. H. CABOT and DR. E. GRANVILLE CRABTREE read a paper on "A Classification of Renal Infection, with Particular Reference to Treatment."\*

#### DISCUSSION OF DR. CABOT AND DR. CRABTREE'S PAPER.

DR. E. GRANVILLE CRABTREE spoke briefly of the laboratory work which he had done, and the data on which the conclusions of DR. CABOT were based. He spoke first of the fact that in early cases of renal infection, before the urine contained pus, with the centrifuge it was possible to show the presence of cocci. He then instanced examples in which old cultures of the colon bacillus and attenuated cultures of para-typhoid injected in the blood could be recovered from the urine of the rabbit within forty-eight hours. He called attention to the excretory function of the kidney as shown by the passage of tubercle bacilli through the kidney, and their recovery in the urine in pulmonary tuberculosis without gross kidney lesions. He then stated that there was a certain amount of evidence in support of the hematogenous origin in some of the infections heretofore supposed to be most typical of the "ascending" type, as, for instance, in a freshly infected pyelonephritis.

DR. JONES called attention to the fact that the occurrence of perinephric abscess as a unilateral infection would appear to be contrary to the supposition of a hematogenous infection. Yet he has pointed out for a number of years that the evidence is in favor of the theory that all perinephric abscesses, except those due to tuberculosis, and infections of the pelvis, are owing to hematogenous infections of the kidney. The finding of abscess cavities in the cortex of the kidney at operation, and the localization of the abscess immediately about the kidney for a long period, are in favor of this theory. In looking up the cases of perinephric abscess at the Massachusetts General Hospital a few years ago, the average duration of symptoms before operation was about eight weeks. If the infection took place in the perinephric fat the pus would not remain localized in the flank for any such period.

\* See JOURNAL, page 780.

DR. PORTER believed that in the early days nephrectomy had been performed too frequently for hematogenous infections of the kidney, and that many of these kidneys would have been of value if they had been preserved.

DR. J. HOMER WRIGHT stated that in general he agreed with the suggestions of Dr. Cabot's paper—namely, that the coccus infections and the colon bacillus infections of the kidney produced a different pathology, the cocci producing a suppurative hematogenous infection in the glomeruli, while the colon bacilli produced infection in the tubules, with extension to the pelvis. He believed that further investigation was necessary on the question of whether glomerular abscesses were ever produced by the colon bacilli.

DR. CABOT closed the discussion. He stated that it was his belief that the resistance of the kidney played a part quite as important as the original infection, and that it was to this fact that the varying severity of the infections could be attributed, together with the occurrence of unilateral instead of bilateral disease. He stated that he believed there was evidence in the lowered output of phthalain during the latter months of pregnancy, indicative of renal damage, and, perhaps, explanatory of the frequent occurrence of infection at this time.

ROBERT B. GREENOUGH, *Secretary.*

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## COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, NOV. 3, 1915, AT 8 P.M.

The President, DR. JAMES C. WILSON, in the Chair.

### SOME PHYSICAL FACTS ABOUT THE RADIO-ACTIVE ELEMENTS AS APPLIED IN MEDICINE.

DR. WILLIAM S. NEWCOMET: The object of this paper is to present a few of the more common misconceptions concerning the radio-active elements. It is unfortunate that the supply of radium is so scattered as it is. This institution could accomplish much for mankind if it could centralize or develop an institution where radium and its allied elements could be obtained and employed strictly for what they are worth, divorced entirely from all tendency to explanation. Just so long as radium remains in the hands of private institutions, or worse still, in private hands, just so long will its usefulness be impaired. The use of these elements must be divided into two groups: (1) For the purpose of irradiation; (2) for employment as medicine internally. In its local use the principal and most penetrating ray of radium is the x-ray, analogous to the Roentgen rays. A second ray, known as the B-ray is analogous to the cathode ray; a third, the alpha ray, is practically worthless in external applications, although 90% of the energy of these radio-active elements is of this form. It must be remembered that radium is merely the parent and gives forth the elements giving rise to the "active deposit." While the rays of thorium are still more penetrating than those of radium, its use must be

confined to the applicator method, and its manipulation from a chemical standpoint is difficult. We should have established in our midst laboratories where these preparations could be obtained and measurements made as occasion demanded. An instance illustrating such need is that of a dealer in this city who had for sale two tubes of radium. He stated that they had originally been purchased from a well-known chemical house, the price being \$400 to \$1400. The value of the radium was found to be 40 cents and \$30. While the external use of radium has many pitfalls, the internal employment has many more. There seems to be a confusion between the so-called rays that emanate from the different radium elements and the emanation which is an element and a gas,—subject to all the laws of other gases, and which when confined within a tube cannot escape.

In the internal administration of radium or thorium it should be remembered that it is the radioactivity and not the elementary base which affects the system. Radium may be given as a salt, soluble or insoluble; or it may enter the system as a gas in the form of the emanation. The salts give off the emanation in proportion to their age, continuously in a definite ratio as long as they are contained in the system. It must be remembered, however, that insoluble salts allow only about 2% of the emanation to escape. Radium may be obtained in solution, its strength and dosage estimated. Just what effect the sulphates of the body have upon it is not definitely known. While in the body, it is giving forth its activity, changing slowly into the emanation, the emanation in turn to the "active product." Should an insoluble salt be administered it passes along the alimentary canal unabsorbed, but gives off the emanation and active product, which are absorbed. The major portion of this emanation, however, remains occluded within the intermolecular spaces of the insoluble powder, and its effects continue until it is eliminated. Although given in solution, water containing emanation must be used at its source. When this is not possible, the commercial emanation, which, however, is not very efficient, should be used under the best conditions.

Attention is also called to the conditions in the use of thorium salts. The desirable product for the internal administration of thorium is thorium-x. It has about the same period of life as radium emanation. Since it is a salt instead of a gas, it remains within the system, undergoing a very rapid change to emanation and "active product," and is, therefore, more powerful than the radium product. The therapeutic value of these extremely powerful agents has by no means yet been established, yet they are being employed by persons with little comprehension of their effects. Beyond doubt they are of value, but the results in their use are in proportion to the skill with which they are administered.

### DISCUSSION.

DR. SOLOMON SOLIS COHEN: In estimating the value of any method of treatment which is to a certain extent new or unfamiliar, there are certain difficulties. One arises from the extravagant statements of those who use it without much thought of what is to be expected and without much ability to criticize results. Another, equally unfounded, arises from the skepticism of those who have made no use of the method, but deny its value *a priori*. But the

greatest difficulty of all, I think, arises from its use, even by intelligent persons, with extravagant expectations of what is to be accomplished. Failing to realize such expectations, the method is condemned as valueless. I have seen no convincing explanation of the therapeutic effect of radium emanation water, but we know that in some pathologic conditions, certain definite changes may reasonably be expected to follow, although not in every case. In my early experience with radium emanation water in a few cases of arteriosclerosis and in a few cases of high tension from other causes, in which it was used, a marked lowering of blood pressure was observed. In other cases exactly similar in every respect, so far as I could tell, this effect was not produced. I have found three forms of the radium emanation apparatus trustworthy. One is made in Pittsburgh, one in New York City, and the other is imported. In selected cases of a limited number of affections, chiefly of the joints, and of certain metabolic aberrations, we do with this agent get reasonably good results in an uncertain proportion of cases,—and that is all we can expect. In one case of long standing osteo-arthritis of the spinal column and in a number of cases of arthritis deformans of the extremities I have seen better palliative results than I know how to obtain by other means; also in a number of gouty patients there has been considerable amelioration. I have seen no case of arthritis deformans or of any other chronic affection of the joints, or gout, or chronic metabolic disturbance cured by means of radium emanation water. We must remember that we have in radium emanation water an agent of limited power, which must be used with discretion and intelligent appreciation of the laws underlying its action.

DR. A. B. HIRSH: I wish to ask Dr. Newcomet his opinion of the intravenous injection of radium as recommended by some commercial concerns sending out so-called literature. A recent issue of the American Medical Association contained a caution on this mode of administration because of our lack of knowledge of the end action in the economy of radium when administered in this form.

DR. NEWCOMET, closing: I did not attempt to speak upon the physics of radium. This subject was presented to us a year or two ago by Dr. Goodspeed, and at that time the different methods of measurements were given. I desired to call attention, as Dr. Cohen has emphasized, to a number of mistakes made in the use of radium preparations, and especially to emphasize the desirability of establishing a central station for supply, so that every physician might obtain radium, thorium, or other agent, in desired amounts, and possessing therapeutic activity. Regarding the question of the intravenous injection of these salts, I mentioned that we have the soluble and insoluble salts of radium and the gas,—the emanation. It must be remembered that radium sulphate is the most insoluble salt known. Just what effect the sulphur and sulphur acids in our economy have upon radium combined with these products of disintegration, such as the emanation, "active deposit," is still unknown. Certainly they must be given with judgment. I think this answers Dr. Hirsh's question.

#### THE OCCURRENCE OF MILIARY TUBERCULOSIS OF THE LIVER IN THE COURSE OF PULMONARY TUBERCULOSIS.

DR. ROBERT G. TORREY: The paper is based upon a study of the reports of 132 autopsies on subjects

showing pulmonary tuberculosis. The frequency with which an apparently recent and wide-spread miliary tuberculosis of the liver is found at autopsy in cases of pulmonary tuberculosis, and the finding that in cases of phthisis dying from other causes, as fatal hemorrhage, acute peritonitis, septicemia, lobar pneumonia, etc., miliary tuberculosis of the liver is not found, makes it appear that the hepatic involvement may be an important factor in determining the fatal issue. The author thinks it probable that infection of the liver frequently takes place by way of the spleen, where the tubercles are of varying age and lie in close relation to large blood spaces directly connected with the portal vein.

#### DISCUSSION.

DR. ALLEN J. SMITH: I have been particularly interested in this curious anomaly of the appearance of tubercles in the liver in individuals apparently dying from pulmonary disease, while in other cases in which there was pulmonary disease, but in which death occurred from other causes, these tubercles were not present. I agree with the suggestion of Dr. Torrey that there may have been a direct transference of the infection by way of the arterial system. That the liver has a high resisting power is clear from the fact of its frequent exemption from tuberculosis, and that if attacked, dissemination of the disease is rare. Only in experimental work in the lower animals, in which the resisting power is low, are we apt to find wide dissemination. If we regard the dissemination due to lowered resistance of the liver, we should expect to see loss of its functional power. It is unfortunate that we have not some better test than at present to determine whether or not there is alteration in the metabolic function of this organ.

DR. WILLIAM M. L. COPLIN: I recall two cases of tuberculosis of the liver manifesting unusual features. One was that of a girl of fourteen years of age, who at operation showed extensive miliary tuberculosis of the peritoneum with voluminous ascites. The serosa was studded with grey tubercles. Nodules were present which macroscopically appeared to be composed of tubercles within the liver. Upon excision of a fragment, intrahepatic tubercles and contained bacilli were demonstrated. The patient recovered from the tuberculous peritonitis and from the lesion in the liver and has married and borne children. In the other case, the liver contained tubercles clearly of different ages; one group had apparently developed shortly before death. I have not found the so-called sub-miliary tubercle of the French writers so frequently as it is said to occur. Of special interest is the relation of lipoids to immunity and especially to the immunity of tuberculosis. It may be that in certain extremely fatty livers frequently found in patients in whom all conditions appear favorable for the development of hepatic tuberculosis, the liver escapes because of the intracellular lipoids. I do not recall an instance of intense miliary tuberculosis in a very fatty liver.

#### CREEPING ERUPTION OF THE SKIN, WITH HISTOLOGICAL EXAMINATION AND THE DEMONSTRATION OF THE BURROWS AND THE LARVAE IN THE EPIDERMIS.

DR. FRANK CROZER KNOWLES: A short review is given of the general subject of creeping eruption, and reference made to the fact that the histological

examination has been successful in but three cases, including the one here reported. The paper is based upon the study during the last three years of 3000 serial sections from the present case. Quite a number of stains have been employed in order to bring out the various salient features of the eruption. The investigation has been most successful in that fully 150 sections show excellent views of the burrows and that 30 present various portions of the larvae. This is the first time that the larvae causing creeping eruption have been found in sections, and also the first time that a successful histological examination has been made in America. The paper is illustrated by lantern slides, in which three clinical pictures are shown of the case, four illustrations of the burrows, three drawings of the larvae in sections, and a photograph of magnified skin showing the clinical appearance of the burrows. In comparison photographs are exhibited of the burrow caused by the itch mite, the acarus scabiei and ova in sections, the burrows of creeping eruption from the case of Rille's and Riecke's, and Sokolow's drawing of the larva. It is a notable fact that while the burrow of scabies is found in the middle and upper horny layer, that produced by the larva in creeping eruption is found in the lower horny layer at the junction with the rete and also in the upper portion of the latter epidermic layer. Some of the burrows were without contents, but the majority were either partly or entirely filled with granular debris, degenerated epithelial cells, free nuclei, eosinophiles, polymorphonuclear cells and lymphocytes. A complete histological examination has been carried out in reference to all of the various layers and structures of the skin. The classification, incubation period, and mode of infection of the individual by the larva are also discussed.



## CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING, FEBRUARY 1, 1916.

J. RAMSAY HUNT, M.D., in the Chair.

### A CASE OF DYSSYNERGIA CEREBELLARIS PROGRESSIVA.

DR. J. W. STEPHENSON presented from the Second Division a woman aged 31, Austrian, married, with three children, one born in 1910 and twins in 1912. Both deliveries were difficult. The patient had been under observation in the clinic for one year. Her story was that in 1908, one year prior to marriage, she began to have shaking of the left upper extremity, which was soon followed by shaking of the left lower extremity. These two symptoms gradually progressed in severity, but at times there were periods of short remissions. However, in these remissions the "shaking" did not entirely disappear. In 1914 her head began to shake, and this also followed the course as portrayed in the extremities. Three months before entering the hospital she experienced a few days of urinary precipitancy and questionable incontinence. As stated, the case had been constantly under observation for one year, and whereas there was a slow but progressive increase of the shaking, the physical findings have remained identical, which were as follows:

All the deep reflexes were present and a little active. The plantar responses were flexor. The abdominal and epigastrics were present and equal, the eye mobility was normal as was the light and accommodation reaction; never any nystagmus. Repeated fundi examinations have been negative, nor has there ever been elicited any history of diplopia. There were no sensory changes. The only abnormal finding was the "shaking" or tremor. In attempts at locomotion the patient's gait was not unlike Huntington's chorea, but the explosive voice, etc., were absent. Volitional effort of any kind produced a marked exaggeration of the tremor. The tremor itself, whereas it simulated exaggerated choreiform movements, was most closely allied to the intention tremor of multiple sclerosis. There was a constant rotary tremor of the head. There was a curious irregular dysmetric movement of neck and shoulders, apparently voluntary effort to counteract the dysmetria. On attempting the finger nose test there was produced a coarse, markedly exaggerated tremor of the intention type: the patient, only after prolonged effort, being able to perform the act, and with fingers resting on nose there was a constant tremor of the hand and extremity. When in repose all tremors ceased, except a slight shaking of the head. Immediately on speaking to the patient, the tremor reappeared. Any attempt to perform any particular act, be it however small, greatly intensified it. During sleep there was no tremor.

The question of diagnosis was interesting in that the condition simulated so many long-recognized entities. The gait suggested Huntington's chorea, but there was no speech disturbance, nor were the movements choreiform. The absence of these symptoms eliminated this diagnosis.

It was stated that at the first visit to the Clinic, one year ago, patient was psychoanalyzed, inasmuch as the movements suggested a tic or a psychogenic condition, but this analysis proved of no avail, and suggestive therapy gave no relief. Parkinson's disease was considered, but the age, absence of the masked expression, the fact that the tremor was not the fine rhythmic tremor of that disease, but a coarse intention tremor, much exaggerated by intentional acts and disappearing on repose, eliminated this condition.

Dr. Stephenson considered this condition as one most nearly approximating multiple sclerosis, but that the patient had been observed for one year with that diagnosis as a secondary consideration, and during this time had never developed a nystagmus or diplopia. The fundi had never shown any suggestion of pallor. The abdominals were constantly present and the plantar responses always flexor. Central scotomata were never elicited. From the fact that not one of these cardinal symptoms could ever be obtained, it was concluded that multiple sclerosis could be eliminated. That the tremor was of the intention variety it was agreed. The patient presented only one symptom, viz., tremor. This tremor being intention and not choreiform, Dr. Stephenson placed the lesion in the cerebellar mechanism, probably degenerative, and considered the case analogous to the affection, originally described by Dr. J. Ramsay Hunt as dyssynergia cerebellaris progressiva, or progressive cerebellar tremor. (Brain, 1914, xxxvii, p. 247.)

**A CASE OF INTERCOSTAL NEURALGIA WITH UNUSUALLY SEVERE HYPERESTHESIA, SHOWING COMPLETE RELIEF FOLLOWING POSTERIOR ROOT SECTION.**

The following case was presented by Dr. E. L. Rochfort from the Third Division: The patient, a Frenchman, 61 years of age and a bronze worker for 30 years, came to the Clinic here in February, 1916. His family history was negative. He gave a history of syphilis 41 years ago in France, where he received a thorough course of treatment. He has had a chronic cough and expectoration about five years and has been told by several physicians that he had tuberculosis. Alcohol and tobacco he has used moderately. His wife has had hemiplegia for the last 25 years and has never been pregnant. The onset of his present illness was about two years ago, with severe pain in the lower dorsal region, that was diagnosed as lumbago. The pain became very acute and he went to a hospital, where his back and left side were tightly strapped. The straps were left on several days, and when removed the patient states many blisters were found below and most of the skin beneath the adhesive peeled off. This did not relieve the pain, and as soon as the skin had healed he noted the condition from which he has suffered up to the time of his admission to the hospital, i.e. a constant dull pain over the area supplied by his 5th-6th-7th dorsal nerves, and a most acute hyperesthesia of this area. He has sought relief in several institutions but nothing has given him relief. On many occasions he has been given morphine to quiet his pain, which has prevented his working except at intervals, when for financial reasons he found it imperative.

At Mt. Sinai Hospital, in May, 1915, it was found he had an aortitis, and a section of a slowly developing growth that extended over his pharynx was removed. This, on pathological examination, proved to be a flat-celled epithelioma. Repeated x-rays of his spine at various hospitals have all been negative. The pain has been so constant and severe as to cause the patient to contemplate suicide, which he claims he would have done long ago if it had not been for his wife. When first seen at this hospital it was thought that his condition was partly of an hysterical nature. Further and more careful examination, however, proved conclusively that this assumption was entirely unjustified.

His physical examination was as follows: A fairly well developed but poorly nourished man with a slight kyphosis in the upper dorsal region (probably occupational). Eyes, negative except for rather sluggish response to light. Teeth fair. On posterior pharyngeal wall is seen a low, flat reddish growth extending over the posterior surface of the tonsils and to the lower border of the pharynx. It was not elevated and did not bleed on being irritated. There were no enlarged glands in the vicinity and the growth did not appear malignant. (The patient stated he had known of its presence for several years but it had never given him any trouble.) There were a few fine moist rales over both lung apices. The heart sounds were roughened but there were no distinct murmurs. His abdomen was negative. His radials moderately sclerotic. S.B.P. 150.

Under his left arm pit, extending down the chest wall about 4 inches and posteriorly to about 3 inches from the midline is a reddened area, covered with smooth skin (where the skin was pulled off with adhesive). About this area were several small

scars suggestive of herpetic lesions. These were more numerous over the anterior surface.

Over the sensory distribution of the 5th, 6th and 7th dorsal nerves several distinct changes were demonstrable. The most remarkable of these was the most exquisite hyperesthesia. When touched lightly with cotton the man would wince and groan with pain. The same area might be pinched hard enough to cause acute pain in a normal person, without the man complaining. There was also a moderate degree of hyperalgesia over this area, to the pin scratch and pin prick. To thermic stimuli there was a slight hyperesthesia to both heat and cold. The patient had noted that firm pressure over this area had given him some slight relief from pain, and when he walked about he usually kept his right hand pressed tightly over the region. The remainder of his physical examination was negative. His blood, urine and cerebrospinal fluid examinations at this hospital were entirely negative.

On March 15, 1916, a posterior root section was performed by Dr. Elsberg. The spines and laminae of D 7-8-9 were removed and about 1 cm. of D 5-6-7 posterior roots were resected on the left side. The wound was closed in the usual manner and the patient made an uneventful operative recovery. Since the operation the patient has been entirely free from pain on the left side of his chest, and palpation over the previously sensitive area shows that the hypersensitivity has totally disappeared. Examination two weeks post-operative shows slight hyperesthesia to cotton wool and a slight hypalgnesia to pin scratch and pin prick. To heat and cold the hyperesthesia is about as it was before operation. The patient is now feeling better than he has for several years and will soon resume his work.

As to the etiology of his condition, there is still considerable doubt. It was most probably a post-herpetic affair. It is of interest to note that Oppenheim and others have reported several similar cases in men who worked in lead and arsenic. The patient as a bronze worker was brought in contact with both these metals for a long period. The possibility of a vascular condition following his specific infection is a strong one. Against this, however, are his repeatedly negative laboratory findings. It was not thought that the apparently benign growth in his pharynx had any bearing on the condition. At any rate, the man is now entirely relieved and there is no reason to anticipate a recurrence of the trouble.

**A CASE OF CARDIORENAL DISEASE SIMULATING BRAIN TUMOR.**

DR. C. BURNS CRAIG presented from the First Division a patient, a watchmaker, 42 years of age, who complained of increasingly severe headaches, limited chiefly to the temples, but involving the entire calvarium, increasing deafness and failing vision; also vomiting attacks, and periods of respiratory difficulty. The patient dates the onset of his trouble, June, 1915, and states that his condition has become steadily worse since then, especially the headache and failing vision. He denies syphilis and his Wassermann is negative. He sustained two head injuries; twenty years ago he was sandbagged and nineteen years ago he was kicked in the head by a horse. He was formerly a constant and excessive drinker, but has taken no liquor for the past sixteen weeks. Formerly he often consumed as many as 15 or 20 cigars daily, but takes none now. In childhood he suffered from whooping cough, measles

and had malaria at the age of 14. His father died at the age of 54, of cirrhosis of the liver.

Upon a more careful inquiry as to the onset of his symptoms, it turns out that for the past ten years he has had headaches, but that it is only in the past six months that they have become unbearable at times. He makes his failure of vision cover about the same period, but marked disability has existed for only two weeks. He had had vomiting attacks as much as ten years ago, but these probably followed drinking bouts. For the past two or three days nothing has been kept in his stomach, even water he would vomit. The defect in hearing goes back as far as thirty years, when he had suppurating middle ears. Following this the right ear was almost deaf, while the hearing in the left ear has been impaired for only the past ten years. During the past ten days his heart did not seem to beat fast enough and he got short of breath and more or less of a feeling of panic. His mother has noticed that he has been mentally confused for the past two weeks, that he imagines things. During certain periods of his terrific headaches, he thought grotesque animals were crawling on the wall. Upon examination he is seen to be a vigorous physical man, perhaps a little over-nourished, without atrophy or skeletal defects. There is rather a vacant expression upon the face and a continued stare in the eyes. The sides of the mouth show an apparent weakness when at rest, which disappears when activated or under emotion. There is a slight tremor of the hands and of the protruded tongue. The tendon and skin reflexes are all present, and symmetrically equal. No Babinski, no Hoffman sign, no clonus. No lack of skill in the use of the fingers. The left border of the heart is perhaps a centimeter outside the nipple line. Pulse rate is 84; there are no murmurs, but the systolic blood pressure ranges from 210 to 230 mm. of mercury. There is a slight swaying in the Romberg position and at times he seems to tend to fall towards the right. His gait is normal. Ocular movements are well preserved. Pupils are large, left slightly greater than the right and both are rather sluggish to light, and of limited excursion. Dr. Ward Holden reports his vision 20/20 in the right eye, and 20/30 in the left, with field complete. Disc margins are blurred, the veins tortuous, with about 1 m.m. elevation of the nerve heads. Dr. Dench finds no evidence of intracranial involvement of the auditory apparatus, but concludes that the defect in hearing is due to his old middle ear suppuration. His speech shows a mild dysarthria, stumbling over test phrases, but this disability he says dates from childhood. Examination of urine shows numerous hyaline and granular casts with albuminuria, an excess of indican, acid reaction and specific gravity 1024 c.c.

We have, therefore a case presenting many of the cardinal symptoms of intracranial neoplasm, namely, headaches, failing vision due to papilledema, deafness, vomiting, respiratory disturbance, hallucinations, and altered mentality. When analyzed and each symptom carefully accounted for, we are forced to the conclusion that the condition is the result of cardiorespiratory system.

In connection with this case, Dr. Craig presented three other cases having pathological conditions in the ocular fundi: One a primary optic atrophy of unknown origin, possibly nicotine; another, atrophy occurring in tabes; and a third showing the tem-

poral pallor frequently seen in disseminated sclerosis.

## Harvard Medical School.

### HARVARD MEDICAL SOCIETY.

HISTORICAL CLUB MEETING IN THE PETER BENT BRIGHAM AMPHITHEATRE, TUESDAY EVENING, MAY 2ND, AT 8.15 O'CLOCK.

Paper of DR. FRANCIS G. BENEDICT:

IVAN PAWLLOW; THE MAN AND HIS WORK.

THIS talk has rather an unusual significance since the cause of it was the report of the death of Prof. Pawlow, and this as yet, I am glad to say, has remained uncertified. Repeated inquiries made at the Russian Embassy in Washington have failed in determining whether it was the court surgeon, E. W. Pawlow, or our own Ivan Pawlow, the physiologist, who succumbed.

Prof. Pawlow was undoubtedly the best known Russian physiologist. In many ways he was the best known Russian scientist. It was about ten years ago that he was awarded the Nobel Prize. His contributions, which are very numerous, were in so many different fields that it appears as though he had touched most branches of science.

Pawlow was born in 1849. His father was a priest. Throughout his school years his life was uneventful. He attended the St. Petersburg Military Medical Academy and in 1883 received the degree of doctor of medicine. He attained his first important scholastic position when he became professor of pharmacology. It was not until he was 41 years of age, however, that he was enabled to work at one line of investigation permanently. His earlier studies were carried out under the most unfavorable conditions. He worked from hand to mouth, having scarcely a corner which he could call his own. During this period he was actually forced to care for his experimental animals in his own home. This intimate relationship between the investigator and his animals may explain, in part, the remarkable results which he obtained, for his post-operative treatment was fully as wonderful as his operative technique.

After being graduated as a doctor of medicine, Pawlow studied abroad for two years. He was first with Heidenhain and later with Ludwig. In Ludwig's laboratory, particularly, he was severely handicapped by his unfamiliarity with the German language. He nevertheless made minor contributions during this period. Upon returning to St. Petersburg, he became professor of physiology in the Military Medical School.

Ultimately he became the director of three laboratories in St. Petersburg: the Institute of Experimental Medicine, The Military Medical Academy and the Academy of Sciences. These he visited each day, and, though they were situated at considerable distance from each other, he invariably covered the ground on foot.

My personal relationship with Ivan Pawlow began eight years ago. I met him on a number of occasions both in his home and at his laboratories. My first impression was that of a man of lightning-

like vigorousness. He seemed to be in continuous motion. In this country he probably would have been characterized as a "real live wire." While watching him at work, a visitor once remarked that he had the eye of a hawk and a hand of steel, coupled with marvellous speed.

His quarters, when I visited him, were not sumptuous, but they were equal to his needs. His needs, however, grew rapidly as the years passed and they have been met recently only by the completion of additional laboratories.

His work may be divided into three main parts. From 1879 to 1887 he made rather important contributions to the physiology of the circulation. The real merit of this work, however, has scarcely been appreciated since the papers were all published in Russian. It is practically a ruling of the Russian government that any works carried out under imperial subsidy must be published in the mother-tongue.

The second part of his investigations concerns the physiology of the digestive tract. This work was started back in 1879 before he had been graduated from the medical school. He wrote one or two papers on digestion and demonstrated a method for making a gastric fistula before the military medical academy. Later papers on digestion appeared in rapid succession. These were likewise printed in Russian and consequently received only scanty attention. It was not until 1897 that his book on the digestive tract really brought him to the attention of the public in general.

The third part of his professional work had to do with animal psychology. As the contributions from this source have also been published in Russian we have only a fragmentary knowledge of the scope and significance of these later studies. The experimental demonstrations on the psychology of reflexes are nothing short of marvellous. Stimuli which at first are painful, through association with food, for example, may subsequently arouse only pleasurable sensations. After Sherrington had seen these reactions he exclaimed, "Now I can understand the Christian martyrs."

(Slides of Pavlov's home and laboratories were shown.)

As a professor in the Military Medical Academy, Pavlov was entitled to wear a military uniform. This he would never consent to do, however, though he was requested on many occasions to sit in military regalia for a photograph.

The antivivisection society has endeavored through its bulletins to convey the impression that Pavlov's dogs are ill-nourished, miserable creatures which suffer both from hunger and from pain. Contrary to this teaching, however, the dogs which I saw—and I passed through all the kennels—were all in admirable condition and appeared to take a hearty interest in life. Pavlov himself was extremely particular about the welfare and comfort of his animals. Many of them have been living for years with permanent fistulae. Such dogs really have an ideal existence, since they are fed almost continuously from morning to night, the greater portion being removed through the fistulae.

At the time the laboratories were erected it was generally recognized that the recovery rooms for the animals were superior to similar rooms in any of the hospitals in St. Petersburg. I found them to be scrupulously neat. It was possible to spray down all of the walls as well as to flush out the floors and hallways. Smoking was not permitted within

the building and special rubber shoes were worn in the operating room.

The gastric juice from the experimental animals now has a great sale. The proceeds of this enterprise practically keep the institute. Only a modest sum is available from the government for this purpose. It is interesting that the greatest demand for the Magensaft comes on the mornings following the national holidays. Such festal days are of very frequent occurrence in Russia. Other factories now produce a large amount of this material. Since Pavlov's product, however, is more perfectly deodorized, it continues to be the superior brand.

#### Paper of DR. REID HUNT:

PAUL EHRLICH.

VERY few men have touched upon as many fields as did Ehrlich. It would be interesting to discuss his activities from many points of view. This evening, however, I shall speak of him from the pharmaceutical standpoint.

It is a remarkable fact that Ehrlich never recorded a negative experiment. There have been very few investigators, notwithstanding, who have conducted as many negative experiments. His work on arsenic is very good illustration of this. While he prepared over twelve hundred compounds, only about six have been described.

His papers were always hastily written. As someone has said, they were "just spit out." This serves to explain, in part, the difficulties met with in reading some of them. Frequently in preparing such a communication he would walk up and down the length of his office shouting out his ideas in imperfectly rounded sentences. His assistant, Sachs, who was in no sense a stenographer, would take down as much as he could and later submit the proof to him.

His addresses and lectures were prepared in the same hasty manner. Sachs once described to me a trip which he had taken to Berlin with Ehrlich. Ehrlich dictated his address on the train, profusely illustrating his remarks with colored pencil figures which he drew on the windows and door posts. The other occupants of the compartment of course thought that Sachs was conducting an insane man to some institution.

When he decided to come to Baltimore and lecture, he had at least seven months in which he could prepare his address. This engagement furnished him with endless excuses to extricate himself from unwelcome dinners and other social functions. I found him half an hour before the meeting, however, without any visible manuscript. When I asked him if he had not written it on the boat coming over, he said no, but added that he was busy writing it then.

Unlike most men of prominence, he had no hobbies. His interests were very narrow, and it was extremely seldom that he attended theatres or similar places of amusement. As for reading literature, I only knew him to go through one novel, and that was a German translation of David Harum which someone presented to him. Strange to say, this book somehow pleased him, and throughout the following winter he quoted from it frequently. Often he likened himself to David Harum and boasted of his shrewdness.

It was in 1902 when I went to his laboratory to work. At that time his studies on immunology were attracting great attention. I was greatly surprised and disappointed when, instead of encouraging me to take up a problem in the same field, he told me to stay in pharmacology.

He had a marvellous mind. It seemed as though he could visualize the structural formula for almost any alkaloid, anilin dye or other organic compound. Just to mention such a substance would be like touching a button to set him off.

He soon set me to work on the study of cocaine derivatives. Though these efforts yielded nothing of direct value, they furnished experience and insight into his work.

Ehrlich's work on cocaine and its derivatives led him directly into the studies on immunity. From his feeding experiments with ricin he was able for the first time to demonstrate an immunity for drugs. These studies likewise furnished the first demonstration of immunity by means of test tubes.

The first incentive to investigate probably came when he was a second year medical student. He read a paper on lead poisoning, and, though it was subsequently shown to be full of errors, it nevertheless impressed him with the idea that the proper way to study pharmacology is to investigate the direct action of drugs on the tissues. Before long he discovered that very little advance could be made with lead salts in such a line of work, and he was led to consider substances like anilin dyes. He was interested in the products of anilin, however, only from the physiological point of view. As he said, he used the dyes to surprise the cells, to study the affinity of the cells for the dye-stuffs, etc.

Ehrlich was born in 1854, and the first anilin dyes were made in 1856, so that they came into the world almost simultaneously. As a student, before he entered the university, he showed a rather marked talent for mathematics. On one occasion his success in this branch led the teacher to excuse him from taking the final examination. This privilege, however, was subsequently revoked, due, the story goes, to the contents of an essay which he wrote on life. "Life," he said, "is a process of oxidation; even the brain itself merely represents oxidative processes. Dreams are the product of abnormal oxidation resembling, in a way, phosphorescence." Though he failed in certain studies in the later years of college life, his research work was always of such an excellent character that it enabled him to obtain his degree. In the University at Berlin he managed to free himself from the routine work by leaving the details for other men.

Following his graduation, he accomplished an enormous amount of work on blood, on poisons, on certain antipyretics, etc.

About 1887 he acquired tuberculosis and was forced to give up his work for a year. He returned as one of the first patients of Koch who had used tuberculin with success. Ehrlich always attributed his recovery to this agent.

At this time, as he had no official position, he was compelled to rent a building and equip a small laboratory of his own. The local street railway company furnished a room in which he was able to keep his experimental animals. This period of self-sustent, which covered about three years, left him with a little ill feeling for the university institute, and this he retained throughout his life.

In 1890 Koch took him into his institute. Ehrlich had previously made some studies on methylene

blue and he now worked out an improved method for staining the tubercle bacilli.

Before long, he started some work with von Behring, who had come to Koch a few years earlier. Ehrlich and von Behring were born in the same year, within a few hours of each other. Germany celebrated their birthdays together.

The investigations leading to the discovery of salvarsan began in more or less an accidental manner. In passing through Berlin, a friend told Ehrlich of his recent work on trypanosomes. The problem fascinated Ehrlich and he set me to work studying the effects of anilin dyes on these organisms. Later he chose arsenic and then carried out his enormous researches on the arsenic derivatives.

Discussion: DR. CUSHING.

ERNEST G. GREY, M.D.

### Book Reviews.

*Sexual Impotence.* By VICTOR VECKI, M.D. Fifth edition. Enlarged. Philadelphia and London: W. B. Saunders Company. 1915.

The first American edition of this work, published in 1899, was reviewed in the issue of the JOURNAL for Dec. 14 of that year (Vol. cxli, p. 607). The fourth edition was reviewed in the JOURNAL of Nov. 28, 1912 (Vol. elxvii, p. 772). The present fifth edition has been revised and enlarged by additions and a few modifications in the light of recent advances in the science of urology, particularly with reference to psychotherapy and to the local treatment and medication of the deep urethra. Apart from these obvious changes, there seems no reason to modify our previously expressed opinions of this book.

*A Text-Book of the Practice of Medicine.* By JAMES M. ANDERS, M.D. Twelfth edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1915.

The first edition of this work appeared in 1897. The previous edition came out in 1913. The present edition brings this standard text-book up to date and considerable new subject matter has been introduced in the fields in which important medical advances have been made. As is inevitable, when one man, however learned and industrious, attempts to cover the whole field of medicine, including diseases of the nervous system, some parts are much more thoroughly and accurately treated than others. On the whole the text-book is sound and conservative and covers the field of medicine as well as it is humanly possible for one book and one man to accomplish this task.

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### MASSACHUSETTS MEDICAL SOCIETY MEETING.

THE one hundred and thirty-fifth annual sessions of the Massachusetts Medical Society and its sections are to be held in Boston on Tuesday and Wednesday of next week, June 6 and 7. Editorial comment upon this approaching anniversary appeared in the issue of the JOURNAL for April 20; and the complete program of the various meetings is published in another column of the present issue. Particular attention is called to the full program of clinics and demonstrations to be given Tuesday morning at the several Boston hospitals.

In conjunction with the meeting of the tuberculosis section, attention may also be called to the leading article in this week's issue of the JOURNAL by Dr. John B. Hawes, noting the progress made during the past five years in the

diagnosis and treatment of consumption by the general practitioners of Massachusetts. The papers by Dr. Frederic J. Cotton, and by Drs. Hugh Cabot and E. Granville Crabtree are appropriate in connection with the surgical symposia of the coming sessions.

As official organ of the Massachusetts Medical Society, the JOURNAL will publish next week a general account of the meeting; and in subsequent issues will print full reports and proceedings, and the complete text of papers presented. In behalf of the Boston profession, the JOURNAL extends a most cordial and enthusiastic greeting to visiting members of the Society.

### FAILURE OF MILK LEGISLATION IN MASSACHUSETTS.

In previous issues of the JOURNAL during the past spring we have from time to time commented on the progress of attempts to secure the passage by the General Court of adequate legislation for control of the production, transportation, and distribution of milk in Massachusetts. Particularly did we advocate and recommend the enactment of the so-called McLaughlin milk bill, which represented the expert judgment of the Massachusetts Health Commission, in the light of the investigation reported by the Massachusetts Milk Commission, and which was approved by the Massachusetts Medical Society, the Massachusetts Anti-Tuberculosis League, the Boston Milk and Baby Hygiene Association, and other medical and public health organizations.

Both the McLaughlin bill and its rival, the Williams-Pratt bill, were adversely reported by the joint committees of public health and agriculture; and on April 26 this report was accepted by the House. An attempt was made on April 27 to secure reconsideration of this action, but this was refused by a vote of 109 to 101. The only remaining hope lay in a revival of the McLaughlin bill in the Senate, which was urged to substitute it for the adverse committee report. This was earnestly attempted. In the daily press of April 27 appeared a letter by Mrs. William Lowell Putnam, summarizing in part as follows the present milk situation in Massachusetts:

"For the ninth consecutive year a bill is before the Legislature to give to the State Health Department the power to protect the public health by safeguarding its milk supply. Without the ability to control the condition of the food chiefly consumed by the most delicate members of the community, no health official can be held responsible for the welfare of the people whom he serves.

"Dr. Charles Harrington, secretary for many years of the State Board of Health, introduced the first bill in 1908, and after its failure to pass the Legislature he asked the help of the consumers of milk for the bill which he intended to introduce again the following year. He died before the time came round again, so the consumers introduced the bill themselves, and every year since then, following in his footsteps, they have worked for this legislation. Twice it was passed by the Legislature and twice it has been vetoed by a governor who was willing to jeopardize the lives of the people and the welfare of the farmers by vetoing the bill to propitiate certain interests.

"The clean Massachusetts farmers need the protection of this legislation for the promotion of their prosperity almost as much as the consumers need it for the protection of their lives. One of these governors was re-elected, but the other failed of re-election.

"Once more a similar bill is before our representatives assembled to work for our welfare. This time the bill is introduced by the new State Health Commissioner after a study of the conditions of milk production throughout the State, which has never been equaled in its completeness. The bill is indorsed by the city of Boston, by the Association of Local Boards of Health, and by the president of the State Dairymen's Association. A majority of the executive committee of the State Grange has indorsed it and appointed one of its number to defend its interests in the matter of the bill before the legislative committee having it in charge. The fact that the Master of the State Grange is now opposing it merely indicates the divided condition of the Grange in this Commonwealth.

"This bill safeguards the farmer's interest by providing for public hearings before any regulations are passed, and these again require the ratification of the governor and council before becoming law. Moreover, it contains provisions for the grading of milk according to the plan carried out in New York for some time past with great success. By this grading system the farmers who choose to produce a high grade of milk will receive a suitable price for their product, as the quality of the milk will be guaranteed by the health authorities on the label of the bottle. No such guarantee exists at present, and nobody wants to pay the price which first-class milk should command

when he can feel no reasonable certainty that he is getting what he pays for.

"The only guarantee furnished at present to the consumer who wants the best kind of milk involves paying the cost of the fancy and expensive frills attendant on making 'certified' milk. Those of us who can afford it pay this extra price at present, but with a properly graded milk, with the guarantee of the State Department of Health upon it, we should be able to buy safe milk at a reasonable price, and the difference between the cost of such milk and that of a lower grade could be demanded by the producer. The Massachusetts farmer needs protection from out-of-State milk, which is usually old and sometimes worse, and this bill would give him this protection. He has not got it now.

"Again the bill is here, with this new and valuable addition recommended highly by the Boston Chamber of Commerce in its recent report on milk conditions. Shall we once more allow politics to come between us and the health, the happiness, the very lives of our children? Shall we let this same game continue to injure the dairy farmers of the Commonwealth? It lies with the public to decide. The final cause of the failure of the bill through these many years has been the indifference of the consuming public."

Probably it is true that public indifference is the ultimate cause of the failure of milk legislation, though the immediate cause is largely political. Certainly the medical profession has done its part towards securing such enactment. Thus far the attempt to revive the McLaughlin bill in the Senate has also failed, and it appears that there must be at least another year's delay before the question of milk supply in this Commonwealth can be dealt with adequately. On Monday, May 22, however, at a hearing before the Ways and Means Committee of the House of Representatives, the passage of the McLaughlin bill was again advocated by Dr. Charles F. Withington, as president of the Massachusetts Medical Society, and by others. The proponents emphasized the need of a central authority to enforce proper regulations for the production and sale of milk in localities where local health boards fail to do their duty. They said that the bill was the result of conferences and compromises and was satisfactory to a great majority of the interested parties. The milk problem is essentially a problem of infant welfare, and is apparently one upon which further education of the public is needed for its satisfactory solution.

## THE LEPER IN MEDIAEVAL TIMES.

In a lecture on Leper Houses and Mediaeval Hospitals,\* delivered before the Royal College of Physicians, London, a very interesting picture is given of the status of the leper in the Middle Ages.

The number of lepers at one time must have been very great, particularly upon the Continent. When Louis VIII, in 1226, made regulations for the leper houses in France, it was reckoned that they were two thousand in number. The disease appeared to have reached its height about the second half of the twelfth century, and diminished rapidly after the Black Death in 1348-49.

Although isolation of lepers in very early times was probably due to the belief that they were wicked people who were being punished for their sins, the fear of contagion later became the chief reason for their isolation. Once a person was adjudged leper, he was regarded as dead; his estate was divided; in some countries his wife could marry again. He was bound by the strictest sort of regulations to come in contact with none but lepers.

With as much as this at stake, the accurate diagnosis of leprosy became of the greatest importance. Three stages of the disease were recognized by Bernardus de Gordonio: the occult or premonitory; the infallible, characteristic of the disease; and the terminating stage. It was apparently the custom to make a definite diagnosis only in the second and third states; in the early period of the malady, suspected persons were watched, but were not isolated.

Very perfect descriptions of the various types of leprosy had been written by Aretaeus of Cappadocia, by Galen and by Oribasius. To the graduate in medicine of mediaeval universities, therefore, the classical signs of the disease must have been very familiar. A translation of the writings of Bartholemey Glanville (about 1360) describes lepers as having "redd Whelkes and Pymples in the face, out of whome oftenne runne Blood and Matter: in such the Nose swellen and ben grete, the vertue of Smellynge faylyth, and the Brethe stynkyth ryghte fowle . . . unclene, spotyd, glemy, quytter, and Nosedrylles ben stopyt, the Wasen of the voys is rough and the voyse is horse, and the Heere falls."

\* Charles A. Mercier, M.D.: *Glasgow Medical Journal*, January, 1915.

It happened not infrequently that the question whether or not an individual was a leper was submitted to a tribunal of lepers, or sometimes to officials of the church, and there is some evidence that the diagnosis was not always correct. Some idea of the terrible life to which the leper was condemned is given by Mercier's description of the ceremony by which the unfortunate sufferer from leprosy was sent out of this life.

"Wrapped in a shroud, and placed on a bier he was carried into the church, his family and friends following as in funeral procession. Arrived in the church, which was hung with black as for a funeral, the leper was laid upon the ground, covered with a pall, and a requiem mass was said. He was then carried to the churchyard and laid beside an open grave, where the priest scattered dust three times upon his head, saying, 'Die to the world, be born again to God.' Then while the *Libera me*, the psalm for the dead, was chanted, the leper was conducted to his cabin, at the door of which the priest gave him his scrip for alms, his stoup for water, his wallet for scraps of food, his gloves, his cloak and his clapper, and addressed him in these terms: 'While you are diseased you will enter no house, no inn, no forge, no mill, nor in the common well or fountain will you drink or wash your clothes. You will not eat except by yourself or with other lepers. You will enter no church during service; you will mingle with no crowd. When you speak to any you will stand to leeward; when you beg for alms you will sound your clapper as a sign that you are forbidden to address any one. You will not go out without your cloak; you will not drink but from your own fountain, nor will you draw water from any well or fountain but that which is before your door. You will always wear your gloves, and will touch no well-rope without them. You will touch no child, not even your own; and you will return to your cabin every night.' In handing him the scrip the priest said, 'In this you will put the alms of the charitable, and you will remember to pray to God for your benefactors.' The priest then planted a wooden cross before the door, fixed to it an alms box, and himself placed the first donation therein. The priest addressed the leper thus: 'My brother, through suffering much tribulation, may you come to Paradise, where there is no sickness nor suffering, but all pure and clean, resplendent like the sun. There you will go, if it please God. *Pax vobiscum.*'"

### THE MEDICAL MEETINGS IN WASHINGTON.

THE tenth triennial session of the Congress of American Physicians and Surgeons, and the meetings of its constituent societies, were held on May 9, 10, and 11 at Washington, D. C., and were attended by over 1000 members. The opening session, on the afternoon of May 9, was devoted to the topic of syphilis, with leading papers by Dr. John A. Fordyce and Dr. Homer F. Swift of New York and Dr. Hugh Cabot of Boston. On the evening of that day the presidential address was delivered by Dr. William S. Thayer of Baltimore on "Practice and Teaching." The subject of the afternoon session of the congress on May 10 was immunization and its practical applications, with leading papers by Dr. Theobald Smith of Princeton, Dr. Ludwig Hektoen of Chicago, and Dr. William H. Park of New York.

Among the fourteen component medical organizations, whose meetings were held simultaneously, three were under the presidency of Boston physicians: the American Dermatological Association, of Dr. Charles J. White; the American Orthopedic Association, of Dr. Charles F. Painter; and the American Society of Tropical Medicine, of Dr. Milton J. Rosenau.

On May 7, just prior to the Washington congress, the twenty-second annual meeting of the American Laryngological, Rhinological, and Otological Society was held at White Sulphur Springs, West Virginia. The principal address was by Dr. Charles P. Grayson of Philadelphia on "Our American Voice and Articulation." The following officers were elected for the ensuing year: Dr. Thomas J. Harris of New York, president; Dr. John Culp of Harrisburg, Penn.; Dr. John E. Brown of Columbus, Ohio; Dr. Richmond McKinney of Memphis, and Dr. James A. Patterson of Colorado Springs, vice-presidents; Dr. William H. Haskin of New York, secretary; and Dr. Ewing W. Day of Pittsburgh, treasurer.

On May 11 and 12, in Washington, D. C., was held the annual meeting of the National Association for the Study and Prevention of Tuberculosis; and on May 12 the annual meetings of the American Sanatorium Association and the National Conference of Tuberculosis Secretaries.

An urgent plea for the establishment of a

strong division of tuberculosis in the public health service of the United States was made by Mr. Homer Folks, secretary of the State Charities Aid Association of New York State, who spoke on "Interstate Control of the Tuberculosis Problem."

"In the United States tuberculosis has been mainly a local problem. The time has come at last when the federal authorities should assume that degree of efficient leadership which they are exercising in the problems of agriculture and other economic interests.

"Only through the United States Public Health Service can any degree of uniformity of method and efficiency in the tuberculosis campaign in forty-eight different states be secured.

"The standardization of hospitals, sanatoria, dispensaries, nursing service and home supervision and all the other elements in the tuberculosis movement can only be secured through federal action. Just as the state helps to coördinate the work of the localities within the state, so the federal authorities should help to coördinate the work in the various states. Only in this way can the vital national interest in the supervision of tuberculosis be made effective."

On the evening of May 12, the twentieth annual meeting of the Washington Medical and Surgical Society was held in that city, under the presidency of Dr. Reginald R. Walker.

The address of the evening was made by Dr. Edward Martin of Philadelphia, who spoke on "Psychological Surgery." Discussions followed in which Dr. William S. Thayer, of Johns Hopkins University, and Dr. Sheldon Horsley were participants. An address was also made by Dr. John D. Blake, of Baltimore.

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### SOCIAL SERVICE AT THE MASSACHUSETTS GENERAL HOSPITAL.

THE tenth annual report of the Social Service Department of the Massachusetts General Hospital is concerned largely with the consideration of the question, "What shall be the attitude of the Department toward the increased amount of work which it is called upon to do?"

The demands of social service upon its workers are severe and necessitate the throwing of one's personality into the consideration of each case. This kind of work cannot be done indefinitely; it is too fatiguing. The number of patients who can be treated properly in a day is limited, and the limit has now been reached. This is in spite of the fact that the Social Serv-

ice has, as far as possible, distributed its patients among local organizations such as Associated Charities and Visiting Nursing Associations. The Department very wisely decides to maintain the quality of work, and to treat fewer patients well rather than more patients poorly.

As Miss Cannon, Chief of the Department, points out in her report, the excessive demand for social service is due partly to the lack of local organizations in smaller cities and towns, but chiefly to general economic conditions. Social workers see their patients as "accumulated evidence of the background from which they come—from the crowded tenements and straining industries, from the crowded streets and oppressing ignorance which surrounds them."

The report from the Children's Clinic states that special care is being given to the home conditions of children with heart disease, of which there were 101 under treatment in 1915, and to the regulation of feeding of such infants as do not live in districts in which the Milk and Baby Hygiene Association maintains stations.

The report from the South Medical Clinic for Syphilis shows that of the 1118 new patients received during 1915, only 107 (9.5%) were lost track of. The remaining 90.5% were under treatment, under observation, or had been referred to other clinics or to private physicians. The observation is made that patients present themselves for treatment at an earlier stage of the disease than formerly, and give evidence that they are realizing more and more their own responsibility in the matters of individual cure and community protection.

During the year 1915, the Social Service Department cared for 2355 new patients and 652 carried over from previous years.

#### THE BOSTON MEDICAL LIBRARY.

THE Boston Medical Library performs its duties to the community so well, in spite of serious handicaps, that the profession at large does not realize how fundamental are its needs. The necessity for more stack room is imperative; the desirability of completing the façade of the building on the Fenway is obvious. A part of this structure may perhaps be postponed for a year or two, but that portion of walls and roof essential to cover and protect new steel stacks, and the stacks themselves, must

be erected in the immediate future. For this purpose a committee has been formed, and is already soliciting contributions. At least \$60,000 are needed at once. This money will suffice for a stack room probably large enough for storage of books during the next decade. At present thousands of volumes and pamphlets are piled in the basement; hundreds and hundreds never having been sorted—and in some instances never even unpacked. These books cannot at present be put into circulation, nor even consulted in Holmes Hall; the existing stacks are pitifully overcrowded, making the duties of officials and pages a hundred per cent. greater than need be.

The Boston Library is fourth among collections of medical books in the United States; it is constantly growing; it renders important services to the entire community; citizens of Greater Boston should be, and presumably are, willing to help in its proper expansion and maintenance: each member of the medical profession should emphasize the pressing needs of the Library to friends and patients, who otherwise might be ignorant, not only of what the Library lacks, but also of what it possesses. The medical profession as a whole has an enormous latent power of influencing popular opinion and action; this power is too infrequently used. Let it be abundantly exercised in aid of the present worthy object.

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#### MEDICAL NOTES.

TUBERCULOSIS IN THE DISTRICT OF COLUMBIA.—The commissioners of the District of Columbia have under consideration a new series of regulations to control the spread of tuberculosis in that region, proposed by Dr. William C. Woodward, the local officer of health.

"They will, if adopted, prevent any person suffering from this disease from engaging in the business of manufacturing, cooking or selling food, receiving employment as a barber or hairdresser, using public bathing places or attending any any public or private school.

"It is proposed that the regulations become effective the first of next October. Before acting on them the Commissioners will endeavor to obtain an expression of public opinion as to the need for a law of such drastic requirements. It is probable that a hearing will be held.

"While the promulgation of the regulations will work hardship in certain cases, it is believed that the acts which they forbid are dangerous to the community in that they tend to spread tuberculosis. If this be true, the hard-

ship that may be imposed upon individual patients suffering from tuberculosis by the promulgation of these regulations will be less than the hardship that will result from failure to promulgate them.

"Dr. Woodward expressed the hope that there would be sufficient community expression of opinion to guide the Commissioners in determining their action in the case. He also suggested that the authority of the Commissioners to promulgate such a law be referred to the corporation counsel for an opinion."

**SOCIAL INSURANCE INQUIRY.**—Under the auspices of the Committee on Insurance of the New York Chamber of Commerce, arrangements are being perfected for a comprehensive investigation into all essential phases of the subject of social insurance, between this and the next meeting of the New York Legislature, with special regard to health insurance. Dr. J. F. Crowell, executive officer of the Chamber of Commerce, to whom communications may be addressed, will have charge of the inquiry.

It is the purpose of this committee to go extensively into the subject, so as to have at hand the desired data and to avail itself of the gist of experience in this and other countries. This inquiry will extend not only to the actual developments in countries where health insurance has made some progress, but is intended also to include a critical examination of the conditions, causes and effects of the different systems with a view to their availability for American communities. It is intended to test the claims which existing systems made at the time of their origin in the light of results.

**MUSHROOM POISONING.**—Dr. W. A. Murrill, assistant director of the New York Botanical Garden, writes that there has just come to his notice a very serious case of mushroom poisoning, in which the poisonous specimens were taken from mushroom beds and were supposed to be a new edible variety. The common mushroom had been cultivated successfully in these beds for two years. Five persons ate the supposed new variety and enjoyed its flavor, but were almost immediately stricken with paralysis, their lives being saved only by the prompt action of their family physician. This indicates that it is very unwise to eat or sell any mushroom appearing in mushroom beds except the ordinary cultivated variety with white cap and pink gills. A description of this new poisonous mushroom has been prepared for immediate publication in *Mycologia*.

**TYPHOID CARRIERS.**—In case a typhoid carrier is discovered by the New York City Department of Health he is notified either directly or through his physician that he harbors the ty-

phoid bacillus, and is given careful directions to prevent infection of others. These directions cover the handling of food, the care of excreta and personal cleanliness. He is advised to keep the Department of Health informed of his whereabouts and to have his stools examined from time to time for typhoid bacilli. The vaccination against typhoid fever of everyone with whom he lives is strongly insisted upon.

**MEDICAL ADVISOR FOR QUESTIONS RELATING TO VENEREAL DISEASE.**—The New York City Board of Health has appointed a medical advisor, to whom those who have or who think they have, venereal disease may apply for advice. The advisor limits his activities to advisory and educational efforts, giving no treatment whatever, and referring such cases as require treatment to the private physician or to clinics, according to circumstances. During 1915, 1910 patients applied who, in the opinion of the medical advisor, required treatment. Of these 702 were referred to the examining physician and 1208 to the clinic. Of the latter group, practically all were unemployed for varying periods at the time they consulted the medical advisor.

**TRANSFER OF NEW YORK QUARANTINE STATION TO FEDERAL CONTROL.**—Pending the completion of arrangements to transfer the New York quarantine station from State to Federal control, Dr. L. E. Cofer, Assistant Surgeon-General, U. S. Public Health Service, has just been appointed Health Officer of the Port of New York. The transfer was urged by Governor Whitman in his annual message. As passed by the Legislature, the bill provides for the appointment of a commission to negotiate the details of the transfer, including the appraisal and sale of the State property to the Federal Government. The bill had the active support of many civic, public health and business organizations, and represents the successful completion of a campaign begun some years ago by the Public Health Committee of the New York Academy of Medicine.

With the exception of the station at Baltimore, more, the United States Public Health Service now controls all the maritime quarantine stations in the United States and its dependencies.

**PROPOSED AFFILIATION ABANDONED.**—In the JOURNAL of May 13, 1915, comment was made on the proposed affiliation of Columbia University with the Presbyterian Hospital and the purchase of the former site of the American League baseball grounds for the erection of a new medical school. It is now reported that the million dollars necessary to take up the option on the property could not be raised, and the plan has, therefore, been abandoned. From

many points of view this is much to be regretted.

**RECENT MEDICAL LEGISLATION.**—Last year the New York Board of Health, acting under the provisions of Section 1176 of the Charter of the City of New York, issued orders to various transit companies requiring them to limit the total number of passengers on any car at any time to one and one-half times the seating capacity of the car. The basis for this order was the fact that overcrowding constituted a danger to the public health because of the increased liability of the communication of infectious diseases such as pneumonia, bronchitis, influenza and tuberculosis. Bacteriological examinations of air in crowded cars have shown the presence of the germs of these diseases, and have shown that the number of bacteria increases in proportion to the degree of crowding. Persistent pleas for relief to the public service commission having resulted in no effective action, the Board of Health felt obliged to take this action, which clearly came within its powers.

In order to nullify this order of the Board of Health, a bill was passed in the closing days of the Legislature and is now before the Governor, which amends the public service commission law so as to vest the power to regulate the number of passengers to be carried in street cars solely with the public service commission. This bill, known as the Simpson bill, if permitted to become a law, will constitute the first invasion of the authority vested in the Board of Health for the protection of the lives and health of the people of the City of New York. The establishment of this restriction upon the legitimate authority of the Board of Health would establish a vicious precedent. The way would then be paved for other interests to ask for special legislation as a means of evading their responsibilities under the public health law.

**CAMPS FOR MEDICAL RESERVE CORPS.**—Owing to the withdrawal of troops from their regular stations for duty on the Mexican border, the United States War Department has been compelled to abandon the instruction camps for officers of the Medical Reserve Corps that had been planned for the coming summer.

**FIRST HAY-FEVER ORDINANCE.**—Through the efforts of the American Hay-Fever-Prevention Association, the City of New Orleans, La., has enacted the first hay-fever ordinance in America. While hay fever is not a disease that figures in the death rate, it is a disease that occasions much suffering and annoyance to those afflicted, who are said to number about 2 per cent. of the population in many sections of the United States.

The ordinance reads as follows:

An ordinance for the better protection of the public health, and particularly to prevent the spread of disease.

**Section 1.** Be it ordained by the Commission Council of the City of New Orleans, That;

1. The tenant or occupant of any leased or occupied premises, lot or other area shall not permit weeds or grass over two feet in height to grow or stand on the premises, lot or area leased or occupied by him.

2. The owner of any premises, lot or other area, not leased or occupied by another person, shall not permit weeds or grass over two feet in height to grow or stand on such premises, lot or other areas owned by him.

3. The tenant or occupant of any leased or occupied premises, lot or other area shall not permit weeds or grass over one foot in height to grow or stand on the sidewalk or banquette abutting the premises, lot or other area leased or occupied by him.

4. The owner of any premises, lot or other area, not leased or occupied by another person, shall not permit weeds or grass over one foot in height to grow or stand on the sidewalk or banquette abutting such premises, lot or area owned by him.

5. A firm or corporation having franchise rights or privileges on the streets shall not permit weeds or grass over one foot in height to grow or stand on any street or area, or any part thereof, which, by the terms of its franchise, it is bound to care for or to keep in good order, condition or repair.

6. For the purpose of enforcing the provisions of this ordinance, a corporation shall be deemed to be represented by its president, or in his absence by its vice-president, or in the absence of both by the officer or individual in charge of the affairs of the corporation, and such representatives shall be held responsible and punishable for any violation by the corporation of the provisions of this ordinance.

7. Each of the members of a firm shall be held responsible and punishable for any violation by the firm of the provisions of this ordinance.

8. For every violation of any of the provisions of this ordinance, the person responsible shall, on conviction, be punished by a fine of not less than one dollar, nor more than twenty-five dollars, and in default of payment of the fine, by imprisonment in the parish prison for not less than ten days nor more than thirty days, or both, in the discretion of the court having jurisdiction.

**Section 2.** Be it further ordained, etc., That all ordinances and parts of ordinances in conflict with the provisions of this ordinance be and the same are hereby repealed.

Adopted by the Commission Council of the City of New Orleans, January 25th, 1916.

**THE COST OF LIVING**—The Bureau of Public Health Education of New York City has issued a booklet printed in English and Jewish in which are given simple general directions as to the purchase and care of foodstuffs, several pages of simple menus and a number of recipes for preparing these articles of food. The list of foods described has been tested practically for about two years by the social service department of the Beth Israel Hospital. The nutritional results have been excellent; the diet suggested, which is for a family of five, provides approximately 9500 calories a day. On the assumption that the family consists of two adults and three children, this is ample. The food supplies 450 grams of protein daily and a proper proportion of acids, bases and vitamines. Food, according to these lists, sufficient to feed a family of five for a week could be purchased in the New York market for \$7.31.

**ST. MARY'S HOSPITAL, ROCHESTER, MINN.**—The twenty-sixth annual report of St. Mary's Hospital, Rochester, Minn., records for the year ended December 31, 1915, a total number of surgical operations of 10,110 and a total number of patients operated upon of 8265. The Hospital cared for 243 medical patients in this time.

**NATIONAL TUBERCULOSIS ASSOCIATION MEETING.**—At the twelfth annual meeting of the National Association for the Study and Prevention of Tuberculosis, held in Washington on May 11 and 12, Dr. Joseph H. Pratt of Boston read a paper on "Results Obtained by the Class Method of Home Treatment in Pulmonary Tuberculosis, During a Period of Ten Years," and Michael M. Davis, Jr., Director of the Boston Dispensary, Boston, read a paper on "Pay Clinics for Tuberculosis."

**DISEASE AND WORKMEN'S COMPENSATION LAW.**—The Supreme Court of Rhode Island has decided that an injury resulting from a fall which was partly "due to dizziness or unconsciousness induced by a disease" was an injury "arising out of and in the course of" employment, for which the employee was entitled to compensation under the workmen's compensation law. The injured employee was a hack driver who was suffering from "hardening of the arteries and Bright's disease." He fell from the seat of a hack which he was driving and was seriously injured.

**WAR RELIEF FUNDS.**—On May 27, the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund.....	\$120,641.48
Allied Fund.....	102,869.91
Serbian Fund.....	98,211.01
French Wounded Fund.....	83,551.46
French Orphanage Fund.....	52,354.08
Armenian Fund.....	40,004.74

Polish Fund.....	35,730.06
Surgical Dressings Fund.....	27,074.17
Facial Hospital Fund.....	20,274.00
Italian Fund.....	17,508.91
Belgian Tobacco Fund.....	2,326.18
Artists' Fund.....	2,144.00
Allies' Tobacco Fund.....	1,439.75
Permanent Blind Fund.....	704.50

#### BOSTON AND NEW ENGLAND.

**THE WEEK'S DEATH-RATE IN BOSTON.**—During the week ending May 27, 1916, there were 273 deaths reported, with a rate of 18.72 per 1000 population, as compared with 222, and a rate of 15.47 for the corresponding week of last year. There were 51 deaths under one year as compared with 37 last year, and 70 deaths over 60 years of age against 65 last year.

During the week the number of cases of principal reportable diseases were: Diphtheria 27, scarlet fever 32, measles 228, typhoid fever 1, whooping cough 38, and pulmonary tuberculosis 62.

Included in the above were the following cases of non-residents: Diphtheria 1, and tuberculosis 4.

Total deaths from these diseases were: Diphtheria 3, scarlet fever 1, measles 4, whooping cough 4, and tuberculosis 17.

Included in the above were the following deaths of non-residents: Diphtheria 2, whooping cough 1, and tuberculosis 1.

**ORGANIZATION OF THE NEW ENGLAND SURGICAL SOCIETY.**—It is announced that the organization of the New England Society is completed. The plan of the Society is to meet annually in some one of the New England States, and arrangements have been made to hold its first meeting in Boston on October 5, 6 and 7, 1916. The committee in charge of this meeting consists of Dr. William P. Graves, chairman, Dr. Charles A. Porter, Dr. Fred B. Lund, Dr. David Cheever, and Dr. Charles G. Mixter. The officers elected for the ensuing year are as follows: President, Dr. Samuel J. Mixter, Boston; Vice-President, Dr. John B. Wheeler, Burlington, Vt.; Secretary-Treasurer, Dr. Philemon E. Truesdale, Fall River, Mass. The executive committee consists of Dr. John W. Keefe, Providence, R. I.; Dr. Joseph M. Flint, New Haven, Conn.; Dr. Lyman Allen, Burlington, Vt.; Dr. Herbert L. Smith, Nashua, N. H.; and Dr. William L. Cousins, Portland, Me.

**NEW ENGLAND DEACONESS ASSOCIATION.**—The year-book of the New England Deaconess Association contains a report of the year's work at the hospitals of the Association at Boston and at Concord, N.H. The Boston Hospital cared for 1169 patients for the year ended December 31, 1915, and the Concord Hospital, 293. The nurse established at the North End Medical Mission has made 1488 calls to the people of

that vicinity and 2769 calls have been made by the district nurses. The William Nast Brodbeck cottage, opened in November, 1915, has increased the capacity of the Boston Hospital to seventy beds.

**LEGISLATION FOR THE FEEBLE-MINDED.**—The League for Preventive Work has recently published a pamphlet urging the appropriation of \$150,000 by the Massachusetts State Legislature for the erection of the new school for the feeble-minded. Physicians are asked, if the arguments presented in the pamphlet appear convincing, to write their senator and representative, urging the passage of this bill of appropriation. Among other things, they state that although there are about 15,000 feeble-minded in Massachusetts, less than 3,000 are receiving care in Waverley and Wrentham. Of the remaining 12,000 many are protected in good homes. Another group are sexually passive, industrially competent, and capable of adjusting themselves to community standards. For neither class is state segregation necessary nor desirable. Approximately 2000, however, can always be found in other public institutions. Those committed to insane hospitals are usually held in permanent custody; the others drift in and out of almshouses, prisons, and reformatories. These 2000, therefore, a constantly shifting group, represent many thousands of unprotected feeble-minded in the community, for whom custodial care is essential.

The development of state schools for the segregation of the feeble-minded meets the requirements of economy, justice, and efficiency. Their per capita cost for maintenance is less than that of other institutions. They furnish a simple environment which is adapted to the needs of defectives and which enables them to live happily on their own plane. They offer specialized industrial training which renders many of the inmates wholly or partly self-supporting within the institution, transforming them from demoralizing and destructive forces into productive members of the state. They furnish protection both to society and to the feeble-minded, for whom community life means danger and exploitation. And finally, by permanent segregation, they prevent the procreation of a new generation of defectives, thus cutting off at the source one of the greatest of social ills and striking at the root of the physical and moral degeneracy, pauperism and misery, alcoholism and crime, with which feeble-mindedness is inevitably linked.

The appropriation of \$150,000 this year for the erection of the first buildings for the new school for the feeble-minded, therefore, is the best investment the State of Massachusetts could make for the alleviation and control of a pressing evil, and for the protection of future generations.

**RÉSUMÉ OF COMMUNICABLE DISEASES FOR APRIL, 1916.**—Measles and whooping cough continued to hold the most prominent place in the communicable disease reports during April. The outbreak of anthrax at Woburn and Winchester and the presence of smallpox in Fitchburg, are the most striking items of the month.

**Measles** continues to be the greatest quantitative factor in the morbidity returns. This infection has spread to every part of the state. The region of greatest prevalence is the Eastern District, of which Brockton is the centre. The Connecticut Valley District, with Springfield as its centre, is running a close second. Reports show gradual extension of the disease to many of the smaller cities and towns. There has been a great improvement in the reporting of measles.

**Scarlet Fever** continues to decrease. This is true when comparing last month with April, 1915. The most gratifying point is the continued low fatality.

**Whooping Cough** has been less prevalent than during last month. There were more cases reported in April, 1916, than in the same month, 1915. This is probably due to better reporting.

**Diphtheria** is holding its own. There has been no marked change in the character or distribution of the infection. The continued low fatality (.059%) is the most gratifying point to be noted. No serious outbreaks have been reported in any part of the state.

**Tuberculosis**—The number of cases of tuberculosis reported was about the same as last month. This was considerably below the five year average for the month of April.

**Typhoid Fever** has shown a slight increase over the number of cases for last month and the same month of last year. However, this disease remains far below the five year average. The fatality rate (12.4%) more nearly approached the normal experience. This means probably more complete reporting of the disease.

**Epidemics**—During the month of April there have been three additional cases of anthrax reported. They were distributed as follows: Clinton (1), Winchester (1) and Woburn (1). All of the infected persons except one have been handlers of dried China hides. Fourteen of the cases have been in tannery workers, in Woburn and Winchester. The epidemiological investigation shows these cases came from infected hides shipped from China. A careful study is being made of the waste products and drainage from the infected tanneries and efforts are being made to prevent the further importation of infected material.

**Rare Diseases**—There have been six additional cases of smallpox reported in Fitchburg. In all of these the infection has been spread by contact with other cases. All have been removed to the smallpox hospital and all contacts have been vaccinated. The interesting point about this outbreak is that only one of the nine cases has a clear history of successful vaccination.

*Pellagra* has been reported from Worcester (1), Cambridge (1) and Northampton (1). All of these cases are receiving hospital treatment.

*Trichinosis* has been reported from Springfield (1) and Boston (1).

*Trachoma* has been reported from Worcester (3), Northbridge (1) and Boston (4).

*Malaria* has been reported from Springfield (1), Newton (1) and Boston (2).

### Massachusetts Medical Society.

#### PROGRAM OF THE 135TH ANNIVERSARY.

The 135th anniversary of the Massachusetts Medical Society will be observed on Tuesday and Wednesday of next week, June 6 and 7, in Boston. Following is the entire body of the program of exercises on both days:

#### GENERAL INFORMATION.

A BUREAU OF INFORMATION will be maintained by the Committee of Arrangements during Tuesday and Wednesday in the lobby of the Copley-Plaza Hotel, the headquarters of the Society during the Annual Meeting.

THE ANNUAL DINNER AND ALL GENERAL AND SECTION MEETINGS (with the exception of the combined meeting of the Sections of Medicine and Surgery on Wednesday afternoon) will be held as in 1915 at the Copley-Plaza Hotel. During both days of the meeting the facilities of the hotel will be at the disposal of the members of the Society, and parking space for automobiles with supervision, will be provided. By arrangement with the management, rooms may be secured at a reduced rate by Fellows of the Society desiring to spend Tuesday or Wednesday night in Boston.

CLINICS AND DEMONSTRATIONS will be held at the various hospitals on Tuesday morning and will be related as far as possible to subjects to be discussed during the meeting.

The Boston Medical Library, 8 The Fenway, will be open for the inspection and use of the Fellows during the days of the meetings.

The Harvard Medical School, 240 Longwood Avenue, and the Tufts College Medical School, 240 Huntington Avenue, will be open for inspection by the Fellows both Tuesday and Wednesday.

#### JUNE 6, 1916. TUESDAY MORNING.

##### CLINICS AT THE VARIOUS HOSPITALS.

###### AT THE BOSTON CITY HOSPITAL.

There will be operative clinics in the Surgical Amphitheatre and in the Gynecological Operating Room at 10 o'clock A.M., and visits and exhibition of cases in the Medical Wards at 10 o'clock A.M.

###### AT THE MASSACHUSETTS GENERAL HOSPITAL.

10.00 A.M. The Industrial Clinic. Dr. Wade Wright.

10.10 A.M. Hemophilia. Dr. G. R. Minot.

10.20 A.M. Spinal Fluid Findings Characteristic of Cord Compression. Dr. J. B. Ayer.

10.30 A.M. Xeroderma Pigmentosum. Dr. J. H. Burford.

10.40 A.M. Tuberculosis of the Tongue. Dr. F. E. Garland.

10.50 A.M. The Present Status of the Wassermann Reaction. Dr. C. M. Smith.

11.00 A.M. The X-Ray Treatment of Graves' Disease. Dr. M. Seymour and Dr. G. W. Holmes. Surgical Operations by Drs. Scudder, Porter, Brackett, Cobb, Greenough and their Associates.

###### AT THE PETER BENT BRIGHAM HOSPITAL.

9.00-12.30 A.M. Routine operative work for the day. Respiratory Laboratory; Demonstration of Method of Determining Basal Metabolism. Dr. Boothby.

10.30 A.M. Demonstration of Cases of Chronic Nephritis and Diabetes with Special Reference to Tests for Renal Function and Acidosis. Dr. Peabody and Dr. Frothingham.

11.30 A.M. Trigeminal Neuralgia. Dr. Cushing.

11.50 A.M. (a) Treatment of Ruptured Liver; (b) Some Aspects of Colonic Stasis. Dr. Cheever.

12.10 P.M. Types of Empyema Cavity with Special Regard to Prognosis and Treatment. Dr. Homans.

###### AT THE ROBERT BENT BRIGHAM HOSPITAL.

Symposium on Arthritis at 10.00 A.M., by Drs. L. M. Spear, C. F. Painter, C. H. Lawrence, and L. T. Brown; followed by ward visits.

###### AT THE CARNEY HOSPITAL.

9.12 A.M. Orthopedic Operations. Dr. W. R. MacAusland and Dr. A. R. MacAusland.

9.12 A.M. Gynecological Operations. Dr. Johnson and Dr. Rushmore.

10.00 A.M. Medical Ward Visit. Dr. Leen and Dr. Fennessey.

10.30 A.M. Demonstration of Wassermann Reaction. Dr. Walsh.

###### AT THE CHILDREN'S HOSPITAL.

10.00 A.M. Cases from Medical Wards. Dr. J. L. Morse.

10.40 A.M. Tendon Transplantation in Infantile Paralysis. Reduction of Congenital Dislocation of the Hip. Dr. R. W. Lovett.

11.20 A.M. Pyloric Stenosis. Dr. J. S. Stone. Tuberculous Cervical Adenitis. Elbow Joint Fractures. Dr. Wm. E. Ladd.

Demonstration of Results of Treatment of Birthmarks: Spina Bifida and Tendon Sutures. Dr. T. W. Harmer.

###### AT THE INFANTS' HOSPITAL.

9.30 A.M. Intravenous Injection in Infants. Collecting Blood for Wassermann Test. Lumbar Puncture. Duodenal Feeding and Diagnosis by Duodenal Catheter. Drs. Howell and Grover.

10.30 A.M. Ward visit, demonstration of unusual cases, and care of premature infants.

###### AT THE FREE HOSPITAL FOR WOMEN.

Room No. 1. Dr. Graves.

7.15 A.M. Plastic and Coeliotomy for Retroversion. 8.30 A.M. Amputation of Cervix and Coeliotomy for Procidentia.

9.30 A.M. Coeliotomy for Fibroid. 10.30 A.M. Plastic and Coeliotomy for Retroversion.

ROOM No. 2. Dr. WADSWORTH.

7.30 A.M. Plastic and Coeliotomy for Prolapse. 9.00 A.M. Plastic and Coeliotomy for Retroversion.

###### AT THE BOSTON LYING-IN HOSPITAL.

9.00 A.M. Demonstration of Methods for the Administration of Gas-Oxygen in Obstetrics. Dr. F. C. Irving.

9.30-11 A.M. Major Obstetrical Operations. Drs. H. T. Swain and J. R. Torbert.

(Should suitable cases be available.)

11.00 A.M. The Modern Treatment of Toxemia of Pregnancy. Dr. F. S. Newell. Pregnancy Clinic, 4 McLean Street.

9.30-11 A.M. Routine Methods of Prenatal Care. Demonstration of the Care of the Complications of Pregnancy.  
Drs. J. L. Huntington and J. B. Swift, Jr.

**AT THE FORSYTH DENTAL INFIRMARY FOR CHILDREN.**  
*Surgical Department.*

The Surgical Staff, under the direction of Dr. William E. Cheshire, will operate on nose and throat, and cases of oral surgery, in the Amphitheatre from 10.00 A.M. to 1.00 P.M.

The regular routine clinics of the Infirmary will be in full operation, and many special cases will be presented in the following departments:

*Operative Dental Clinic.* Dr. William Z. Hill in charge.

*Orthodontia Clinic.* Dr. Frank A. Delabarre in charge.

*Extracting Clinic.* Dr. William A. Goble in charge.  
*Radiographic and Photographic Clinic.* Dr. Albert Kinley, Jr., in charge.

*Research Laboratory.* Dr. Percy Howe in charge.

JUNE 6, 1916.

**ANNUAL MEETING OF THE SUPERVISORS.**  
FOYER, COPELEY-PLAZA HOTEL  
11.30 O'CLOCK.

JUNE 6, 1916.

TUESDAY NOON.

FOYER, COPELEY-PLAZA HOTEL  
**ANNUAL MEETING OF THE COUNCIL.**

JUNE 6, 1916.

TUESDAY AFTERNOON.

**MEETING OF THE SECTION OF MEDICINE.**  
FOYER, COPELEY-PLAZA HOTEL  
2.30 O'CLOCK.

*Officers of the Section of Medicine:*

DR. HENRY JACKSON, Boston, *Chairman.*  
DR. F. GORHAM BRIGHAM, Boston, *Secretary.*  
(Program arranged by officers of section.)

DIABETES.

1. Results Obtained in the Treatment of Diabetic Cases, May 1, 1915, to May 1, 1916.—Dr. Elliott P. Joslin, Boston.
2. Definition and Determination of Acidosis in Diabetes Mellitus.—Dr. Albert A. Hornor, Boston.
3. Observations on the Blood Sugar in Diabetes Mellitus.—Dr. Orville F. Rogers, Jr., Boston.

*Discussion:*—Dr. Harry W. Goodall, Boston; Dr. Walter R. Bloor, Boston.

NEPHRITIS.

1. Tests of Renal Function from the Standpoint of the General Practitioner.—Dr. Francis W. Peabody, Boston.
2. Eye Changes in Renal Diseases, Their Diagnostic and Prognostic Value.—Dr. Peter Hunter Thompson, Boston.

*Discussion:*—Dr. Channing Frothingham, Jr., Boston; Dr. Reginald Fitz, Boston; Dr. George S. Derby, Boston; Dr. George Van Ness Dearborn, Boston.

JUNE 6, 1916.

TUESDAY AFTERNOON.

**MEETING OF THE SECTION OF SURGERY.**  
STATE DINING ROOM, COPELEY-PLAZA HOTEL  
2.30 O'CLOCK.

*Officers of the Section of Surgery:*

DR. CHARLES E. DURANT, Haverhill, *Chairman.*  
DR. WALTER M. BOOTHBY, Boston, *Secretary.*  
(Program arranged by officers of section.)

**SYMPOSIUM ON FRACTURES.**

1. Fractures of the Base of the Skull.—Dr. Harvey Cushing, Boston.
2. The Importance of Early Reduction of Fractures with Displacement.—Dr. William Darrach, New York City.
3. The Treatment of Hip Fractures.—Dr. Frederic J. Cotton, Boston.
4. Certain Facts Concerning the Operative Treatment of Fractures of the Patella. (With lantern slides.)—Dr. Charles L. Scudder, Boston, and Dr. R. H. Miller, Boston.
5. Some Aspects of the Treatment of Compound Fractures Under Civil and Military Conditions.—Dr. David Cheever, Boston.

*Discussion:*—Dr. Robert W. Lovett, Boston; Dr. John Baptiste Blake, Boston; Dr. John Homans, Boston.

JUNE 6, 1916.

TUESDAY AFTERNOON.

**MEETING OF THE SECTION OF TUBERCULOSIS.**  
BALLROOM, COPELEY-PLAZA HOTEL  
2.30 O'CLOCK.

*Officers of the Section of Tuberculosis:*

DR. ALBERT C. GETCHELL, Worcester, *Chairman.*  
DR. JOHN B. HAWES, 2d, Boston, *Secretary.*  
(Program arranged by officers of section.)

1. Tuberculosis and Syphilis.—Dr. James A. Lyon, Rutland State Sanatorium.

*Discussion:*—Dr. W. A. Hinton, Cambridge, Dr. C. Morton Smith, Boston; Dr. R. I. Lee, Cambridge.

2. Tuberculosis Carriers.—Dr. Charles E. Perry, Hampshire County Sanatorium, Haydenville.

*Discussion:*—Dr. A. K. Stone, Boston; Dr. Adam S. MacKnight, Fall River; Dr. Charles J. Downey, Springfield.

3. What Constitutes Clinical Tuberculosis in Adults.—Dr. George L. Schadt, Springfield.

*Discussion:*—Dr. Sumner H. Remich, New Bedford; Dr. Cleveland Floyd, Boston; Dr. Henry D. Chadwick, Westfield State Sanatorium.

JUNE 6, 1916.

TUESDAY EVENING.

**THE SHATTUCK LECTURE.**  
FOYER, COPELEY-PLAZA HOTEL  
8 O'CLOCK.

By DR. THEODORE C. JANeway, Baltimore.  
Subject: "The Etiology of the Diseases of the Circulatory System."

*At the close of the lecture there will be music and refreshments.*

JUNE 7, 1916.

WEDNESDAY MORNING.

**ONE HUNDRED AND THIRTY-FIFTH ANNIVERSARY.**  
FOYER, COPELEY-PLAZA HOTEL  
9.30 O'CLOCK.

*Business of the Annual Meeting.*

**PROPOSED AMENDMENTS TO THE BY-LAWS, WHICH HAVE BEEN SUBMITTED TO THE COUNCIL.**

Section 1 of Chapter II shall be amended by transposing the words "unless otherwise ordered by the Council," in the second and third lines of the said Section, and by omitting all of the text after the word "June," in the fourth line, so that the Section, as amended, will read as follows:

The annual meetings of the Society shall be held, unless otherwise ordered by the Council, in Boston, on the second Wednesday in June.

#### Chapter IV, Section 1.

In the second line, after the word "president" insert the word "ex-presidents," and in the third line omit the word "and," and after the word "treasurer" insert the words "and librarian," so that the section shall read as follows:

Section 1. The Council shall consist of councilors chosen by the district societies, and the president, ex-presidents, vice-presidents *ex officio*, secretary, treasurer and librarian of the general society, and the chairman of each standing committee.

Chapter VII, Section 3, that the word "June" in the last line of the fourth paragraph be changed to "March"; so that the clause shall read:

This dividend shall be apportioned among the district societies according to the number of annual assessments which shall have been paid to the district treasurers previous to March first.

(Literary Program arranged by the Sub-Committee on Scientific Papers of the Standing Committee on Publications and Scientific Papers, Dr. J. S. Stone, Boston, and Dr. F. T. Lord, Boston.)

The papers will be devoted to the following topics, viewed from the standpoint of Public Health and Preventive Medicine:

1. The Relation of the State Department of Health to the Communicable Diseases of Childhood.—Dr. A. J. McLaughlin, Boston.
2. Measles.—Dr. E. H. Place, Boston.
3. Scarlet Fever (Illustrated with lantern slides).—Dr. F. B. Mallory, Boston.
4. Scarlet Fever.—Dr. C. V. Chapin, Providence, R. I.
5. Diphtheria.—Dr. J. S. Hitchcock, Northampton.
6. Diphtheria.—Dr. W. H. Park, New York City.
7. Whooping Cough.—Dr. J. L. Morse, Boston.

#### WEDNESDAY NOON.

THE ANNUAL DISCOURSE WILL BE DELIVERED BY  
DR. DAVID L. EDSELL, BOSTON.

#### JUNE 7, 1916. WEDNESDAY AFTERNOON.

##### COMBINED MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.

AMPHITHEATRE OF THE PETER BENT BRIGHAM HOSPITAL,  
607 HUNTINGTON AVENUE, BOSTON.

2.30 O'CLOCK.

*Chairmen:* DR. CHARLES E. DURANT, Haverhill; DR. HENRY JACKSON, BOSTON.  
*Secretary:* DR. F. GORHAM BRIGHAM, BOSTON; DR. WALTER M. BOOTHBY, BOSTON.

(Program arranged by the officers of the sections.)

##### SYMPOSIUM ON GOITRE.

1. Medical Treatment of Goitre.—Dr. David L. Edsell, Boston.
2. Surgical Treatment of Goitre.—Dr. C. A. Porter, Boston.
3. Recent Advances in Our Knowledge of the Active Constituent in the Thyroid; Its Chemical Nature and Function.—Dr. Edward C. Kendall, Rochester, Minn.
4. Some Recent Experimental Work on the Thyroid Gland.—Dr. Walter B. Cannon, Boston.
5. Metabolism Studies of Thyroid Cases.—Dr. Walter M. Boothby, Boston.

*Discussion:*—Dr. Frank H. Lahey, Boston; Dr. Malcolm Seymour, Boston.

JUNE 7, 1916.  
WEDNESDAY EVENING.

7 O'CLOCK.

The ANNUAL DINNER will be served in the BALLROOM of the COPELEY-PLAZA HOTEL, promptly at 7 o'clock. Dress suits not necessary.

##### DINNER TICKETS.

Tickets for the Annual Dinner at one dollar apiece may be obtained at the Bureau of Information during the two days of the meeting by those Fellows whose current dues are paid up.

#### NOMINATING COMMITTEE FOR 1916-1917.

The following is the nominating committee elected by the eighteen District Medical Societies at their annual meetings during April and May, 1916. Their duty is to nominate officers and orator at the annual meeting of the Council, June 6.

District	Principal	Alternate
BARNSTAPLE	E. E. HAWES	C. W. MILLIKEN
BERKSHIRE	J. H. RILEY	E. W. MARKHAM
BRISTOL NORTH	F. A. HUBBARD	D. D. DEAN
BRISTOL SOUTH	A. H. MARSHALL	R. W. JACKSON
BUCKS NORTH	F. W. SHAW	R. V. BARRETT
BUCKS SOUTH	G. L. BROWN	BYRNE METZGER
FRANKLIN	G. P. TWITCHELL	
HAMPSHIRE	J. M. BIRNIE	H. W. VANALEN
HAMPSHIRE	O. W. COSS	H. W. HITCHCOCK
MIDDLESEX EAST	E. C. FISH	
MIDDLESEX NORTH	J. J. McCARTY	J. H. LAMBERT
MIDDLESEX SOUTH	E. C. HARRIS	G. T. WARREN
NORFOLK	T. J. MURPHY	A. N. BROUGHTON
NORFOLK SOUTH	J. C. FRASER	C. S. ADAMS
PLYMOUTH	A. E. PAINE	F. G. WHITNEY
SUFFOLK	G. W. W. BREWSTER	A. L. CHUTE
WORCESTER	DAVID HARROWS	J. T. DUGGAN
WORCESTER NORTH	A. P. MASON	E. L. FINKE

#### Correspondence.

##### NAPOLEON'S WOUNDS.

BOSTON, MASS., May 12, 1916.

*Mr. Editor:*

In the JOURNAL of Apr. 20, 1916, the following statement appears:

"The only wound that Napoleon ever received was treated by Larrey, and this was not a battle wound, properly speaking, but was due to a kick on the instep from his own horse. This was not even serious."

Compare, however, *Les Trois Blessures de Napoléon* (*Escape*, Paris, 1813, iii, p. 228), which in its preface says (translated): "In a study on the health of Napoleon which he published recently in *La Chronique Médicale*, Mr. George Barral makes allusion in these terms to the wounds which the great Captain received in war: 'It is certain that he was hit, by bayonet blows, by sabre blows, and by missiles from fire-arms, more often than is commonly believed and said. When they embalmed him they were astonished to discover on his thighs, his legs, his heels, the marks of numerous injuries.'"

Since the reference therein made is now inaccurate, I looked into the most obvious volumes and readily found the following: "Napoleon showed me the marks of two wounds: one a very deep cicatrix above the left knee, which he said he had received in his first campaign in Italy, and was of so serious a nature, that the surgeons were in doubt whether it might not be ultimately necessary to amputate. He observed that when he was wounded, it was always kept a secret, in order not to discourage the soldiers. The other was on the toe, and had been received at

Eckmühl." ("Napoleon at St. Helena," by Barry E. O'Meara, New York, 1889, I, pp. 198-199.) "I asked him about a wound of which there was a deep mark in the inside of the left thigh, a little above the knee; he said it was from a bayonet." ("Napoleon at St. Helena," by Barry E. O'Meara, New York, 1889, II, p. 229.) "While he was dressing, he put his hand on his left thigh, where there was a deep scar. He called my attention to it by laying his finger in it; and finding that I did not understand what it was, he told me that it was the mark of a bayonet-wound by which he had nearly lost his limb at the siege of Toulon. . . . The Emperor, on this, observed that people had in general wondered and talked a great deal of the singular good fortune which had preserved him, as it were, invulnerable in so many battles. 'They were mistaken,' added he; 'the only reason was, that I always made a secret of all my dangers.' ("Journal of the Private Life and Conversations of the Emperor Napoleon at St. Helena," by the Count de Les Cases, London, 1824, I, Part 2, p. 67.)

If I, inexpert, and within two hours, could find the above, it seems probable that overwhelming evidence against the statements first quoted, could be adduced by someone familiar with any large part of the more than 80,000 items in the Napoleon bibliography.

Yours very truly,

ALFRED ELA, M.D.

#### CAESAREAN SECTION AGAIN.

BOSTON, MASS., May 12, 1916.

*Mr. Editor:*

I do not wish to weary your readers with a prolongation of the controversy which has risen between Dr. Kellogg and myself with regard to Caesarean Section, but I do wish to call attention briefly to two points in his recent letter.

First: Dr. Kellogg states that he has been unable to see the bearing of experimental work on animals upon similar conditions in human beings. This argument has long been used by the Anti-Vivisectionists. For refutation I refer the reader to numerous articles in this JOURNAL during recent years.

Second: My critic makes the statement that the repair of child-birth injury is not difficult surgery. This is a common and pernicious fallacy. The gynecological clinics of Boston all contain some patients in whom repair of such injury has been unsuccessful, even at the hands of master gynecologists.

Very respectfully yours,

JOHN T. WILLIAMS, M.D.

#### Miscellany.

#### SOCIETY NOTICE.

The eleventh annual meeting of the New England Alumni of the University of Maryland School of Medicine, comprising the alumni of the University of Maryland School of Medicine, the Baltimore Medical College and the College of Physicians and Surgeons of Baltimore, will be held at Young's Hotel, Tuesday evening, June 6, at 5.30 P.M., banquet at 6.30 P.M.

A. LAWRENCE MINER, M.D., President,  
Bellows Falls, Vt.  
C. S. Gilman, M.D., Secretary,  
45 Bay State Road, Boston.

#### APPOINTMENTS.

Henry C. Marble, M.D., of Boston, has been commissioned as First Lieutenant, Medical Corps, M.V.M., and is assigned to the Fifth Regiment Infantry.

Richard H. Miller, M.D., of Boston, has been commissioned First Lieutenant, Medical Corps, M.V.M., and is assigned to the First Regiment Field Artillery.

#### RECENT DEATHS.

DR. JOHN FRANCIS HANAFIN, a Fellow of The Massachusetts Medical Society, died of pulmonary tuberculosis at Saranac, N. Y., May 7, aged 30 years. He was a native of South Hadley Falls, and was educated in Belchertown and at Yale College, taking his M.D. from the College of Physicians and Surgeons, Baltimore in 1911. He practised in Holyoke.

DR. LOUIS J. PHELAN, who died on May 7 at Paris, France, had been engaged on Red Cross work in that city. He was a graduate of the Medical College of the University of California.

DR. WILLIAM MURRILL BULLARD, who died of heart disease on May 12, at Brooklyn, N. Y., was born in 1840. After graduating from Amherst College, he studied medicine at the University of Goettingen. He had practised his profession in Brooklyn for many years.

DR. RICHARD STEIN, who died at New York recently, was born in Germany in 1860, and received his medical education at the University of Heidelberg. He had practised his profession in New York for a number of years.

DR. HENRIK GREVE BLESSING of Copenhagen died at Christiania, Norway, on May 22. He is remembered recently as physician to the Nansen Polar Expedition of 1893-96.

DR. CHARLES AUGUSTUS WHEATON, who died on April 29 at St. Paul, Minn., was born in Syracuse, N. Y., on March 17, 1853. He received the degree of M.D. in 1877 from the Harvard Medical School.

DR. LUTHER M. FERGUSON, who died on May 22 at Washington, D. C., was born in Chin Kiang, China, on July 2, 1888, the son of a missionary surgeon. After attending the Cantonal College at Lausanne, Switzerland, he returned to the United States and entered Phillips Andover Academy from which he graduated in 1906. He received the degree of A.B. from Harvard College in 1910 and that of M.D. in 1915. In 1913 and 1914 he served as surgical house officer at the Massachusetts General Hospital and subsequently was admitted to the United States Army Medical Reserve Corps. He then entered the United States Army Medical College from which he had but recently graduated and had been appointed assistant surgeon and first lieutenant in the active medical corps. He had just been detailed to the Walter Reed Hospital for service. He is survived by his widow.

DR. FRANK PARKER TAYS LOGAN, of Gloucester, Mass., was found dead on the floor of his office, May 26. He was born at Columbus, Texas, October 16, 1866, and was a graduate of Harvard Medical School in 1897. In this year he joined the Massachusetts Medical Society and settled in Gloucester, where he had practised since. He specialized in tuberculosis, was a member of the staff of the Addison Gilbert Hospital, and during the Spanish War was first Lieutenant and assistant surgeon to the 8th Mass. Volunteers. He was a member of the Association of Military Surgeons, U. S., of the American Medical Association and of the Gloucester Medical Club.

DR. EDWIN WILBUR HIGBEE, aged 66, died May 21, at his home in Northampton, Mass., after being in failing health for some time. He was born in Charlotte, Vt., and obtained his professional education at the medical school of the University of Vermont. After graduation he first practised in Westfield, and then in Springfield. After the retirement of his uncle, the late Dr. E. B. Harding of Northampton, Dr. Higbee succeeded to his practice. He was never a Fellow of the Massachusetts Medical Society. Dr. Higbee is survived by his widow and one son.